

Letters to the editor

Frye panned

Sir, - I am sorry that Paul Shaw should detect "British arrogance" in my article on "the stage of English studies" (*THES*, March 8). It is not something I see much cause to feel. Certainly British literary theory seems less interesting to me at present than American or German - as Mr Shaw might discover from a glance at my *Kinds of Literature* (Harvard and OUP, 1982).

It is not for me to say if my ideas are crude or pretentious. But I must beg space to clear up the misunderstanding that I disparage Frye's criticism, particularly in comparison to Leavis's. For I profoundly admire Frye's work, read it avidly (more often than Leavis's) and frequently recommend it to students.

Unlike the structuralists, on the whole, Frye bases his views on a wide and intimate familiarity with literature. My point was simply that his procedure is dogmatic, or positivistic. He and Leavis state cases; they seldom argue for them by a lively demonstration. This, I tried to suggest, may have had a side effect on the development of English studies.

As for the suggestion that I prefer Leavis because he "was at Cambridge and Frye was in the wilderness of north America", it is amusingly unapt. (1) I am an Oxford man. (2) I do not prefer Leavis. (3) I myself now teach half the year in north America, and certainly do not think it a wilderness. (4) I have taught in far too many universities and countries to feel anything but detestation for British provinciality.

Yours faithfully,
ALASTAIR FOWLER,
Regius professor emeritus of rhetoric and English literature,
University of Edinburgh.

Library group

Sir, - The University Grants Committee and National Advisory Body have set up a transitory working group, under my chairmanship, with the following agreed terms of reference:

"To advise on the current provision of, and likely needs for, library and information services at institutions within the areas of responsibility of the University Grants Committee, the National Advisory Body and the Welsh Advisory Body, taking account also of institutions within the responsibility of the Scottish Education Department and Department of Education in Northern Ireland, and to make recommendations for action. This will involve a review of likely future demand (both in terms of numbers and of expertise) for library information professionals and of the services provided by each of the library and information sciences schools, bearing in mind the changing nature of library and information work."

I would not commend that sentence as a model of English prose, but terms of reference are more often ornate than elegant. I would, however, be grateful to hear (in writing) from any organization or individual who feel they may be able to assist us in our inquiries. Communications should be addressed to John Burchell, Research and Development Department, The British Library, 2 Sheraton Street, London, W1V 4BH.

Yours sincerely,
Professor Brian Morris,
St David's University College,
Lampeter.

Decisions

Sir, - Like many other users of the Brunel University priority decision system add the Institute of Work Sciences budget priority system; we find their great advantage is as decision insight systems.

It is therefore strange to find the authors of these systems emphasizing their use as decision making systems (Letters, *THES*, March 3), especially in an educational journal where insight is valued.

After all, decisions were not made by any parties to the coal dispute as a result of using these systems; though the disputants evidently gained some insight, judging from their public statements after using these systems.

Yours sincerely,
V. HARGREAVES,
Penix Daxo Associates,
12 Shaftesbury Avenue,
London.

On the outside looking in

Sir, - I was a little surprised to see "news in brief" (*THES*, March 8) naming the shortlisted candidates for the directorship of Birmingham City Polytechnic. In the public sector, appointments are typically swathed so much in secrecy, any breach of which (even for the purpose of passing or obtaining relevant information) being regarded as patronage or unfair canvassing. I began wondering whether all four Birmingham applicants would be disqualified.

However, what struck me as ominous was that all four look-alike contenders are deputy directors from polytechnics. I know the pay is poor, but why this determination for in-breeding?

There has been much written in *THE THES*, over the past year, bemoaning the outside world's ignorance about polytechnics. But, really, is not this the fault of the polytechnics' own inward looking neuroses?

There appears to be an opinion that only poly people are suitable for poly jobs - so recruitment is incestuous.

Marginal share

Sir, - In his interesting piece on Raymond Williams, Peter Scott states that his position was always "close to the margin" of the English faculty at Cambridge. Whatever the truth of this ideologically, it is misleading if it suggests that he was an outsider so far as the running of the faculty was concerned.

He was a member of the faculty board during most of his career here, and was a notably effective secretary.

Sir, - Peter Scott (*THES*, March 15) is mistaken when he describes *Culture and Society* (1958) and *The Long Revolution* (1961) as Raymond Williams' earliest books, which were *Reading and Criticism* (1950), *Drama from Ibsen to Eliot* (1952) and *Drama in Performance* (1954).

Reading and Criticism, also, refutes Scott's assertion that "to suggest Williams ever came close to being a Leavisite is plainly misleading."

Civil servants

Sir, - My first aim is to correct a typographical error which appeared in my article "The Politics of Efficiency" (*THES*, March 1). I referred to the Conservative Government's policy of 1979 to reduce the size of the Civil Service to 630,000 by 1984 - a reduction of over 100,000 staff. I pointed out that the Government had oversteered this target but, in error, you printed the word "by" instead of "to", so rendering my text inaccurate. The correct version should read that the size of the Civil Service was reduced to 623,972 (more, reduced by 63,972). Furthermore, the new target for the size of the service set for 1989 is 592,723: a further cut of 6 per cent.

This matter of cuts leads me to my second aim: to comment on leaks of official information. The *THES* published my article on this subject on March 18 1983 and I should like now to link these two. If officials (particularly senior ones) hold political views which conflict with the policies of the government of the day, they can resign. However, weakened staff morale may heighten political views as in the case of Sarah Tisdall, the Foreign Office clerk who leaked a confidential memorandum about cruise missiles to *The Guardian* in 1983.

Among her motives was anger about government policies concerning public expenditure on health, education, and the Civil Service. After her trial

Pension rates

Sir, - As a result of my article "A captive market for taxation" (*THES*, February 8), I have had several inquiries on the equivalence of the Teachers' Superannuation Scheme with pension schemes which do not give a lump sum but give a pension based upon one-sixth of salary for every year of service.

It is difficult to find a true and exact equivalence, even phasing an annuity with the lump sum benefit of the TSS gives a false picture as part of the returns are deemed to be a return of capital and so tax-free, and only a

part of the return is taxable as income. However, using the buying-in rates of the TSS for a 65-year-old, it is hypothetically possible for a teacher to buy added years until his lump sum is the extent that he would have had if he had retired at the age of 60.

This clearly indicates that if the Government Actuary's figures are to be believed, a teachers' pension of one eighteenth and lump sum of three eighths is currently equivalent to a lump sum of one sixth of salary for each year of service.

Although these thoughts occurred to me, my writing now was only prompted by the arrival, on the same day, of the March Management News. Here, on page 4, Philip Nind OBE, discussing open learning, warns that "an exclusively internal management training programme will create company clones who continue to extract solutions to next year's problems from last year's company manual".

Is this not largely the trouble with the polytechnics? There is little flexibility, and no grasping of the challenge of change with optimism. The emphasis is on surviving rather than thriving. Thus the ailing public sector, far from seeking the injection of new talent (let alone a transfusion of fresh blood), seems determined to favour the unimaginative mediocre from within its ranks, rather than risk the

and chairman. There were surprisingly few changes in the faculty, in fact, in which he did not play an important and influential part.

If, as the article states, he admires the way in which English at Cambridge has been reorganized since 1960, he must take his fair share of the credit.

Yours sincerely,
JOHN BEER,
Petershouse College,
Cambridge.

Sir, - For a moment I thought I purchased the wrong tabloid when I read your "Infantile Scargillism" editorial. The trumped-up Leavis alludes, I suppose to Lenin's *What is to be Done?* (1902) and *Order*. How very twee and attempting gun-twiddling tactics, you've managed to blow your own eff.

Why do you think such acts of protest as those against Joseph, Hurdline and Brittan take place? Because it is that way the pressure-groups concerned know that they will attract media-coverage which they would not otherwise. You litter your own page with the "saw of Sir Keith" in the same way that the student-left press of the late 1960s adorned its pages with bowl-wrecked gongs from Marx, Lenin, Guevara and Mao. (Perhaps such inter-day radicals are now employed by your paper, their presentation style is often so naively simplistic.)

And in any case, the less perceptive, receptive, often have to be "egged on" in the educational process, don't they? Indeed, Mr Heseltine's ludicrous last can only have benefited from the egg-shampoo. Similar treatment at Sassoon's would have doubtless left him back a tanner at least. And put him feels someone mistaking a scalp in a hairdressing salon, I hope remembers that that person was a student, once!

The fundamental danger of passive acceptance is that you will be passed over entirely. Now that you've successfully alienated one sector of your readership, who will you be clobbering next? Perhaps you think your paper's getting too good to read.

Yours sincerely,
GRAHAM WHITE,
The Old Post Office,
Peck, Truro.

DR ROSAMUND M. THOMAS,
Senior Research Fellow,
Wolfson College, Cambridge.

It is commonly considered equivalent of the popular one sixth scheme. In the event of the lump sum being taxed of course, the equivalence is even worse and then equates to a one seventh scheme. Yours faithfully,
P. R. KOCH,
Superannuation Secretary,
Association of Polytechnic Teachers.

Letters for publication should arrive by Tuesday morning. They should be as short as possible and written in a clear, concise style. The editor reserves the right to edit letters for clarity and brevity.

Protesting voices

Sir, - "Infantile Scargillism" or "Leavisite" and irresponsible journalism. Your leader (*THES*, March 8) set out among other things to shout down the Home Secretary, Manchester. In fact, with the agreement and cooperation of the student union, Mr Brittan did speak, although perhaps not surprisingly he had a noisy reception.

What your leader did not refer to was the behaviour of the police, in ports of which have led to widespread expressions of concern (*THES*, March 15 among others). You are right to be concerned about freedom of speech which Manchester University Students' Union went to considerable lengths to safeguard. You appear, however, to be unconcerned about the equally important right of build assembly and demonstration, which appears *prima facie* to have been violated by the police.

Believing in the vital importance of civil liberties of both, Manchester University AUT passed the following resolution: "Manchester AUT re-affirms its commitment both to freedom of speech and to the right of peaceful assembly and demonstration. It expresses grave concern at reports of police behaviour outside the student union on Friday, March 1, and calls for an official independent inquiry into the tactics and actions of the police on this occasion."

Perhaps you should follow suit and express your admiration for those a higher education who take civil liberties seriously, rather than thoughtlessly by adding your voice to those who distort complex issues in order to give us a bad name.

Yours faithfully,
PAT DEVINE,
President, Manchester AUT.

Sir, - For a moment I thought I purchased the wrong tabloid when I read your "Infantile Scargillism" editorial. The trumped-up Leavis alludes, I suppose to Lenin's *What is to be Done?* (1902) and *Order*. How very twee and attempting gun-twiddling tactics, you've managed to blow your own eff.

Why do you think such acts of protest as those against Joseph, Hurdline and Brittan take place? Because it is that way the pressure-groups concerned know that they will attract media-coverage which they would not otherwise. You litter your own page with the "saw of Sir Keith" in the same way that the student-left press of the late 1960s adorned its pages with bowl-wrecked gongs from Marx, Lenin, Guevara and Mao. (Perhaps such inter-day radicals are now employed by your paper, their presentation style is often so naively simplistic.)

And in any case, the less perceptive, receptive, often have to be "egged on" in the educational process, don't they? Indeed, Mr Heseltine's ludicrous last can only have benefited from the egg-shampoo. Similar treatment at Sassoon's would have doubtless left him back a tanner at least. And put him feels someone mistaking a scalp in a hairdressing salon, I hope remembers that that person was a student, once!

The fundamental danger of passive acceptance is that you will be passed over entirely. Now that you've successfully alienated one sector of your readership, who will you be clobbering next? Perhaps you think your paper's getting too good to read.

Yours sincerely,
GRAHAM WHITE,
The Old Post Office,
Peck, Truro.

DR ROSAMUND M. THOMAS,
Senior Research Fellow,
Wolfson College, Cambridge.

It is commonly considered equivalent of the popular one sixth scheme. In the event of the lump sum being taxed of course, the equivalence is even worse and then equates to a one seventh scheme. Yours faithfully,
P. R. KOCH,
Superannuation Secretary,
Association of Polytechnic Teachers.

Letters for publication should arrive by Tuesday morning. They should be as short as possible and written in a clear, concise style. The editor reserves the right to edit letters for clarity and brevity.

Lecturers angry over pay

by David Jobbins

There will be no renewed pay negotiations between vice chancellors and university lecturers before next week's special salaries council called by the Association of University Teachers.

University leaders had been pressing for a meeting of Committee A, the first stage in the negotiating process, to agree for an improvement on the 4 per cent rise they have already rejected. But no opportunity was found and the union's executive decides today what recommendations to put before the council next Wednesday.

Although union leaders are refraining from talking publicly about industrial action at this stage, the mood is likely to be angry. They hope, however, to retain the support of the vice chancellors in making a joint approach to the Government through Committee B on the issue of salary erosion and its effect on academic effectiveness and morale.

Negotiations resumed yesterday between college lecturers and the local authority employers with no certainty over the outcome but a feeling of relief among the local authority associations that the two sides were still talking.

The main lecturers' union, the National Association of Teachers in Further and Higher Education, said this week that its members were voting overwhelmingly in favour of industrial action - essentially an overtime ban and refusal to cover for absent colleagues - and that the first effects would be felt this week.

Leaders of the Association of Polytechnic Teachers will discuss whether to ballot members on their attitude to industrial action in the absence of a "reasonable" offer or in the event of further mounting picket lines at polytechnics and colleges.

The Professional Association of Teachers attacked Natfhe for taking industrial action and warned it would make it difficult to convince the public of the lecturers' case.

Staff unite to save seats

The staff unions at Napier and Glasgow colleges of technology have joined together to plan their opposition to proposed changes in their governing bodies.

The further education section of the Educational Institute of Scotland and Scottish Further and Higher Education Association have been appalled by the Secretary of State for Scotland's proposals that when the two colleges become central institutions this autumn, staff seats on the new boards of governors should be halved.

The Scottish Secretary also wished to make three direct appointments, including the chairman, to reduce trade union and regional council representation, and to increase the number of governors from commerce and industry.

The college unions have launched a series of joint meetings to discuss strategy and hope to enlist the support of their current college management. Both Strathclyde and Lothian regional councils, which run the colleges at present, have attacked the Scottish Secretary's proposals, particularly in so far as they reduce council representation from four to one.

Lothian Region's education committee last week voted unanimously to have three council representatives among Napier's governors, with three Scottish TUC governors as opposed to the Scottish Secretary's proposal of only one.

THES writer wins science award

Jon Turney, *THE THES* Science Correspondent, has won one of four Glaxo Science Writer's Fellowships for 1984.

The award, made in conjunction with the Association of British Science Writers, is for features published last year in *THE THES* work which "in the opinion of the judges did the most to enhance the quality of science journalism".

Triple alliance 'fails to meet needs'

by Peter Aspdon

The triple alliance in Britain between the world of employment, the Government and the education sector is failing to respond to the country's most urgent needs, a conference in Oxford has been told.

The claim came from Mr Christopher Ball, chairman of the National Advisory Body and warden of Keele College, Oxford, who said Britain was facing a national crisis because of the three sectors' inability to agree on common aims and objectives.

"The triple alliance has failed as yet to regenerate the economy to enable us to achieve a standard of living equal to that of our competitors among the advanced nations, to offer adequate and rewarding employment to our people, and to provide them with the means to determine, to seek and to achieve their chosen roles, aspirations and ideals," he told an Anglo-German conference on higher education, the state and the economy.

He said it was fruitless to lay the blame on any one sector although the divided aims, incoherent systems, fragmented organization and contending leadership of the education world had not escaped notice.

"The triple alliance that I envisage, the threefold partnership of employment, Government and education, should undertake the difficult task of reconciling conflicting attitudes, setting agreed objectives and providing the longer term planning we so badly need. That this needs saying at all is itself a clear sign of the failure - or absence - of the triple alliance," he said.

Mr Ball said other signs of the system's failure were the undesirable and pernicious opposition between education and training, Britain's historic and continuing failure to provide effectively for the retraining and updating of its workforce, and the incoherence of the country's educational systems and structures.

One of the reasons for the failure of the alliance, said Mr Ball, was that the industrial revolution in Britain and the achievement of commercial wealth pre-dated the establishment of a modern educational system. He said the English emphasis on "the high culture of the mind" did not relate very closely to the world of wealth creation.

"Our elite high status universities have - almost without intending it or noticing it - imposed on the secondary system through their admission requirements a philosophy which emphasizes research-related, theoretical, specialized education for its own sake."

The idea that the education service might also be more directly responsible for wealth creation is in this country a relatively unfamiliar one. We must ensure that an adequate supply of graduates is as ready and willing to serve the nation in industry and commerce as they have been to pursue careers in the civil service,

finance, law and accountancy and education."

Mr Ball also criticized the mandatory student awards system which he said gave students an "automatic escalator" to higher education which did little to encourage them to think about their future career structure and job opportunities.

Britain faces a nightmarish future in which society will become increasingly polarized, with education acting as the main polarizing agent, Professor A. H. Halsey, director of Oxford University's social and administrative studies department, told the conference.

He said the country was moving towards a state in which those who have successfully negotiated their way through higher learning were the only ones who could secure an attachment to the formal economy, while others relied increasingly on welfare hand-outs, social services and other agents of state control.

Making new models for the common good

by Jon Turney
Science Correspondent

This time next year, MPs who disagree with the Budget will be able to draw up rival plans with help from the Macroeconomic Modelling Bureau at Warwick University.

The House of Commons has agreed to fund two researchers who will work alongside the Warwick bureau's existing team to provide help for MPs and select committees. The new unit is the brainchild of Dr Jeremy Bray, MP for Motherwell South and Opposition spokesman on science and technology.

Dr Bray said that in the last Parliament, the Select Committee on the Treasury felt analysis of economic models in production of evidence was not up to the technical levels possible.

Although the Economic and Social Research Council, the Treasury and the Bank of England agreed to sponsor the new bureau at Warwick in 1983, MPs still lacked access to policy evaluation using alternative models.

The bureau at Warwick is designed to give academics ready access to computer models of the economy, including the Treasury's own model. But it does not do policy-related work itself. Now, the House of Commons Commission, which handles Westminster's finances, has agreed to pay £70,000 a year for the new Parliamentary unit. It will be independent of the bureau, and run by a group under Professor Marcus Miller at Warwick.

Dr Bray said the employment of researchers as specialist advisers over

the long term was a new departure for the House, and the new unit had no precise equivalent in other countries. He hoped the unit would start in September, doing work for the select committees, especially the committee on the Treasury, for individual MPs, including Opposition spokesmen, and making new studies available through the House of Commons library.

The two researchers recruited will already have experience in the field, and will help MPs make their own forecasts of movements in the economy nationally and internationally. Dr John Whitley, head of the Warwick bureau, said: "They'll be able to produce alternative budgets before the Budget" proper, using different models."



A day out at the zoo... Francis Evans, lecturer in the history of technology at Sheffield Polytechnic, gives a demonstration of early watermills to the British Association of Young Scientists at London last Saturday.

Cuts planned for OU centre

The BBC's Open University production centre is reducing its undergraduate output by 25 per cent. Discussions are underway with the trade unions to reduce the number of production days from seven to five days a week.

This would mean a 15 per cent cut in staffing levels. According to the head of the centre, Mr John Radcliffe, Government education cuts have forced the BBC to draw in their horns in all sorts of areas.

He said there would be fewer repeat transmissions and the number of pro-

grammes would have to be reduced from 250 to 200 in 1986.

Further savings would be made by using the centre's spare capacity to produce programmes for outside agencies such as the Westminster and the Engineering Industrial Training Board.

In 1986 the centre would be doing work for over 40 outside agencies, saving the BBC £500,000. "This is cutting into time which the Open University could use on its own programmes if it was given adequate resources," Mr Radcliffe said.

Colleges form Anglican front

Continued from front page

They argue this has emphasized the need for the Anglican sector to have a clear voice through its representatives on the Voluntary College Consultative Council - the body which acts as a broker between the NAB and all the voluntary colleges.

Other developments which have made joint arrangements even more imperative are the long-term planning intentions of the Department of

Education and Science on future student numbers, and the forthcoming proposals on teacher training numbers. If half the voluntary sector places were then, with joint planning they could seek to have different subjects located in certain centres, rather than spread out.

The colleges also believe that there are considerable educational and financial benefits in closer cooperation through sharing expertise and specialist facilities.

Natfhe in clash with the law

The college lecturers' union will take initial steps tomorrow to avoid a confrontation with the courts over its rule book.

The TUC-affiliated National Association of Teachers in Further and Higher Education has been warned by lawyers that its internal election procedures are in conflict with a section of the 1984 Trade Union Act which comes into effect this autumn.

Union leaders have been warned that if a member were to bring an action under the Act it would have no conceivable defence. Natfhe is one of a handful of unions affected by the section dealing with executive committees, with the main anxieties elsewhere directed towards political funds and affiliation to the Labour Party.

Because it is out on a limb over an issue which is likely to attract legal action, union leaders have decided their main duty is to prevent internal affairs being liable to a judge's discretion.

While maintaining its objections to the act, Natfhe is therefore inclined to change its rules where necessary to reduce the chances of a legal action. Tomorrow its national council will be asked to authorize the national executive to draw up a report on new rules which achieve this aim while maintaining the greatest possible degree of continuity with the existing rule book.

The rule changes, which already exist in draft form, will then be reported to the union's July council. By then, union leaders expect that the May annual conference will have based proposals to allow for a rules conference to be held the autumn deadline. If this fails, no rule changes could be made until May 1986, by which time legal action might be under way.

Natfhe believes that legal action is no idle threat, and is convinced that some elements of its membership have close links with right-wing libertarian groups that would encourage it. But the executive position faces criticism from the left who believe the union is in danger of departing from the principles agreed at the TUC's Wembley conference.

PCL to make rescue bid for contract

The Polytechnic of Central London is to send its rector or his deputy to Libya to try and recover a contract to teach Libyan students, the polytechnics court decided this week.

The court discovered that if the contract is not restored it will cost PCL £300,000 rather than £200,000 anticipated. A PCL delegation was due to visit Tripoli this week, but it was postponed by the court until Dr Terence Burlin or his deputy could get a visa to lead it.

The court also agreed to set up an inquiry into how the deal, to run courses for Libyans at a technical institute in Malta, went wrong. The Libyans cancelled the contract after PCL had installed equipment at the Malta college, employed staff and started the courses.

The inquiry will include representatives of the court, the polytechnic management, staff and student union. It will be chaired by one of the Inner London Education Authority representatives on the court, Councillor Simon Turney.

His terms of reference are to look into the Libyan contract and to report back to the court. There was discussion at the court on extending these to a wider investigation of PCL's international operations and into the polytechnic's financial management and control, but this was postponed until after an initial report.

ILEA members of the court insisted that if the Libyan scheme was not saved, the shortfall must come from polytechnic reserves and trust funds, and not from its block grant. The court agreed a measure which would transfer the debt to a company called PCL International, but that the polytechnic would then make PCL a loan sufficient to cover the debt until it called be paid back.

PAT provides professional and legal services for lecturers in colleges of all kinds. It is a fully certificated trade union.

PAT does not belong to the TUC. It is a condition of membership that applicants undertake never to participate in strikes.

We work for a high level of professional commitment among teachers and lecturers; for the promotion of their interests by the force of argument rather than the argument of force; for the establishment of a genuinely professional image for the teaching profession.

Membership increased by over 25% in 1984. We continue to grow in all parts of the United Kingdom in 1985. We believe that the future of the profession lies in the direction we are taking.

If you wish to consider joining us, write for more information to the following address (no stamp required):
Professional Association of Teachers, FREEPOST, Department HE, 99 Friar Gate, DERBY, DE1 5BR

DON'S DIARY

THURSDAY

Students gather on campus to take coach to Chicago for overnight flight to London. May have worked long hours to raise the money. A number have never been on a plane, nor in a large city. I hope the jet lag diet in my wife found in the *New York Times* works. Temperature in Green Bay: 5°F. I tell the students how mild Britain is, compared to Wisconsin in Winter. I leave my coat at home.

FRIDAY

The plane leaves an hour late but the flight is good after a bumpy start. London is mild and drizzly. My (British) wife and our two little girls go off to stay with friends in Peckham. I stay with the 24 students and a colleague (a theatre professor) at a hotel in Paddington. We get students settled in and I head off to Charing Cross Road to see if I've just published my first book in *Collect's*. It is—I'm excited and tempted to buy a copy. Truly, Charing Cross Road is for an academic what Las Vegas must be like for a gambler.

WEEKEND

Saturday we take students on bus tour of London. They love it. Our tour guide (what my wife would call a jolly hockey sticks type) is inappropriate for a university group, telling us that everyone gets away from London this time of year. While waiting for the changing of the guard (her idea of history), the students see the Tower of London. I tell her sociology and social history she says: "What's that?" I am fooled by the weather as it's very cold on Saturday and snowing on Sunday. Why does London at below-freezing temperatures seem colder than Wisconsin at sub-zero (°F) temperatures?

Students discover the discos and clubs. I go to visit my family in Peckham. Sunday's snow prevents them from leaving me as planned, so I take some students to the Victoria and Albert. The jet lag diet is moving for all bodily functions except sleep. Am I up till 2am from excitement or because of the lonely bed?

MONDAY-FRIDAY

Tour of Parliament; Museum of London (surely one of the world's great museums); lectures; University of London; Dillon's to get students equipped with reading assignments. Some are they always moving the history section? University College to show them my *alma mater* (as we say in the States), and Jeremy Bentham. (my students think of possible candidates for such treatment on our campus); the Natural History and Science and Technology museums. I've always wondered how Geoffrey Elton could claim that Americans had more interest in the past than did the English. I worry whether students can keep up the pace in light of their nightly agonies to discos and clubs. They can!

WEEKEND

I take a train to Liverpool to visit my brother-in-law and family. In the Wirral. Some students also travel to Liverpool: to pay homage to the birthplace of the Beatles. Cold and snowy weather continues. (I wonder what it's like back in Wisconsin). Have good conversations on the train—as long as I ask the questions. Gregarious Americans travelling alone, such as myself, must be a nuisance to the natives who, as right falls, cannot escape my gaze by looking out of the windows. Fortunately, on this ride back to London I

meet a young Liverpudlian anxious to talk about the new teaching position he is about to take up in London.

MONDAY-THURSDAY

National Museum of Labour History: more lectures; Imperial War Museum, galleries, theatre and films. I take a few students to see the new Dario Fo play. It's their first time to see political farce and they really enjoy it. Students are in love with Britain. Several visited Cardiff and attended a rugby match on Saturday, and now plan another trip to Celtic Britain—this time, Edinburgh and beyond. The strength of the dollar makes students feel rich, many of them buy another suitcase in which to put newly acquired books and clothes. And yet they are not obvious to the crisis, so many of the young people they meet at clubs are unemployed. One comments that opportunity is an American ideology.

FRIDAY

I go to Oxford to have lunch with Christopher Hill. He never lets me pay—even with the dollar-pound making me feel affluent. We discuss history and politics, and the possibility of his coming to Green Bay to visit in October. Then I stop in at Blackwell's (which I think of as the bookshop counterpart to Dr. Who's Tardis). Finally a visit to my publisher out on Cowley Road. It's a pleasure meeting with the people with whom I've just corresponded and "telephoned" for so long. We discuss the next book project and polish off a bottle of red wine.

SATURDAY-WEDNESDAY

I do my laundry and go to see *The Return of Martin Guerre* in Hampstead. Then travel to Birmingham to see Rodney and Jean Hilton. They surprise me and have Edward and Dorothy Thompson to dinner. Apparently, they all like my book, and we are a bit surprised by John Kenyon's "open-minded" review in *The Times*. Rodney harasses me and says I'm an illiterate for not reading crime thrillers—deposits a Hammett novel on my pillow. The next day we drive to Warwick.

WEDNESDAY-SUNDAY

On to mid-Wales to catch up with my family in Ffos-y-felin (near Aberystwyth). I wonder how the students are getting on in Scotland during their "independent study" week. I visit the University in Aberystwyth and meet some of the faculty. Spend a good afternoon with head of department of Economic and social history and sociology. We discuss the fellowship for which I have applied and the possibility of faculty exchanges. Emergency phone call from London: one of the £50 notes the bank has given to us for our travellers' cheques is counterfeit. The student is reimbursed—but only after being threatened with arrest and a jail sentence by investigating policeman.

MONDAY-THURSDAY

Back in London I take my daughters to see *101 Dalmatians* at Cinemasia, and to London Transport Museum in Covent Garden. Rhiannon (five) would spend the whole day there if it were not for the attraction of an upper bunk bed waiting for her at the hotel; my family having joined me at the hotel for the last few days. Spend the remaining money on Oxford Street, and at Dillon's (I buy a collection of Hammett stories). Students all want to extend stay in Britain—one actually does. Flight back to Chicago is pleasant—Rhiannon and I get to visit the captain and crew in the cockpit. Temperature on arrival is sub-zero (°F). On bus ride back to Green Bay I begin to think about a sabbatical in Britain.

Harvey J. Kaye

The author is associate professor of social change and development at the University of Wisconsin.



For they are all jolly good fellows...

The 1985 Royal Society fellowship election yesterday brought a third fellowship for the department of electronic and electrical engineering at University College, London.

The college believes it is unique for an engineering department to have three active professors all of whom are fellows of the society.

Although only five or six of each year's 40-strong band of new fellows are engineers rather than scientists, the department has gained two fellowships in successive years. Profes-

sor David Davies (left) became a fellow last year and he was joined yesterday by Professor John Midwinter (centre), who holds the British Telecom chair in optoelectronics.

The trio is completed by Professor Eric Ash (right), head of department and Pender professor of electrical engineering, who was elected to the society in 1977.

In fact, the department claims five active fellows, as two emeritus chairs, Professors Harold Barlow and Alex Cullen, both of whom are also fel-

lows, are still working full-time in research.

The Royal Society also announced this week that Sir George Porter will be the next president of the society, succeeding the biologist Sir Antony Huxley whose five-year term expires this November. Sir George is a professor of chemistry at the University of Cambridge and director of the Royal Institution of Great Britain. In keeping with tradition, he is a Nobel prize-winner. His formal election will take place in November.

Warnock spells out teaching proposals

by John Yates

A general council with the power to strike off substandard teachers is one of four recommendations to be made by Lady Warnock in her Dimbleby lecture tonight.

She says that if such a council were established it would have an immediate impact on teacher training, shifting the emphasis from higher education back to the schools.

In a lecture entitled "Teacher Teach Thyself", Lady Warnock examines the state of school, education and teacher training in the 1980's, and finds that there is a deep dissatisfaction inside and outside the profession.

A general council composed of teachers from the maintained and independent sectors should be set up to establish criteria for good practice, to monitor performance and to strike off those who fall below the required standards.

According to Lady Warnock, Mistress of Girton College, Cambridge, the council should have members from both primary and secondary schools, and a small number of lay people and representatives from higher education.

The council would act with the DES

in accrediting teachers who have completed their training. It would also be authorized to investigate complaints against teachers whether brought by parents, school governors, or other teachers.

Lady Warnock proposes replacing the current higher education system with a nationwide network of "teaching schools" based on an analogy with teaching hospitals. Teacher-tutors would spend up to half their time with trainee-teachers.

Such a change would mean that teachers at last become responsible for the training of their own professionals, and the system of teacher-tutors could be used to extend the career prospects for teachers.

This leads Lady Warnock to her third proposal; assessment. She rejects Sir Keith Joseph's plan to give local authorities the power to root out ineffective teachers. Such a scheme would be unnecessary if teachers had their own teaching council, which would set and monitor national standards of competence.

Her final suggestion is that a new career structure with big pay differentials should replace the existing system of union negotiated blanket pay awards.

MSC claims YTS success

A substantial proportion of young people on the Youth Training Scheme are receiving nearly twice the weekly training allowance and getting three times as much off-the-job training than other trainees, according to a Manpower Services Commission survey.

The survey also claims that YTS has become a major channel for recruiting young people to the permanent workforce and that the careers service is regarded as the most successful method of recruitment by the majority of managing agents.

The unpublished survey of YTS providers, which has been presented to the MSC Youth Training Board, involved a study of some 460 managing agents and sponsors and over 450 work places providing work experience. It is regarded as a key element in the YTS evaluation strategy approved by the board last year.

The survey shows that all young people who are completing the first year of their apprenticeship under YTS—one in eight of YTS trainees and some 18 per cent under Mode A employer schemes—are receiving between £41 to £50 a week allowance as well as getting an average of 32 weeks to a maximum of 45 weeks off the job training.

In contrast, the majority of trainees receive only around £26 a week, with some 16 per cent achieving some small top up. About two-thirds of trainees get only the minimum 13-week off the job training with only 11 per cent receiving an average of 45 weeks of training under a Mode A training release for longer

periods of up to 21 weeks. The survey shows too that nearly 40 per cent of apprentices YTS trainees are in skilled occupations in construction and engineering, with one in six in service occupations such as hairdressing, hotel and catering and office work.

The majority of trainees, on the other hand, tend to be most frequently confined to administrative, clerical work, personal services and sales work, followed by installation, maintenance and repairs.

As far as recruitment and selection is concerned, the survey indicates that on the whole Mode A agents tend to be more selective than Mode B sponsors, with one in 10 agents requiring prospective trainees to have at least three O levels. Moreover in just over a quarter of cases they also use tests for skills such as numeracy, literacy and dexterity.

In terms of recruitment to permanent employment, the survey shows that over half the managing agents and nearly three-quarters of other work experience providers use the scheme to screen for permanent employment.

The survey shows that approximately one in eleven trainees were converted into employees during 1984, and that at the time of the survey managing agents were expecting to take on about 15 per cent of the trainees and sub-contractors 25 per cent. Follow-up surveys show that 27 per cent of Mode A trainees who left the scheme in April and July 1984 secured permanent employment.

Plan to take politics to the people

Local forums to develop political education for adults were proposed at last week's Politics Association year in London.

A national steering committee to coordinate and promote political education in the regions was also set up, but there was disagreement about the content of political education courses and who they should be aimed at.

Professor Frederick Ridley, a Liverpool University, opened a seminar by advocating an instrumentalist approach which would see the teaching of useful skills rather than the great issues of politics.

He said such courses should be aimed at underprivileged groups who needed to develop practical political skills before playing their full part in democratic politics.

Mr Lindon West, of Berkshire Workers' Educational Association, said Professor Ridley's view of political education was too dogmatic and that the wider issues in politics could not be separated from particular skills.

Mr Andrew Bennett, Labour MP for Denton and Reddish, told a seminar that the shift in resources from the humanities to the sciences was ill-conceived.

"We are not incompetent at building nuclear power stations and making weapons, what we lack are the skills to control them," he said. But he would not put a figure on the Labour Party's commitment to political education for adults.

Ms Anne Sofer, for the SDP, said true political education would come about when power is sufficiently devolved to encourage participation in local politics.

The seminar ended without agreement on Professor Ridley's model, agreed to set up a steering committee to promote contacts between political teachers in the regions.

The committee includes: Mr Jones, Manchester University; Vernon Hull, WEA south east division; Mr Ian Walker, Manchester college of adult education; Mr Tony Wright, University of Birmingham; Dr Peter Evans, Huddersfield Polytechnic; and Ms Jean McQuillan, Barnsley College.

Training decision deferred

The Secretary of State for Manpower Services Commission has agreed to postpone the decision on the level of grants for the Youth Training Scheme in 1985, but has deferred a decision on the weekly training allowance.

Mr Tom King has told the committee that he will make a decision whether or not to raise the allowance currently £26.25 as soon as possible. Commissioners recommended an increase to over £27.



IT'S THE NEW EXPANDED YTS SCHEME—THEY PAY FOOTBALL FANS NOT TO CAUSE ANY TROUBLE.

Inservice training gets £5m immediately

New legislation to make radical changes in the funding of inservice teacher training is to be introduced in 1987, the Secretary of State for Education announced this week.

Pending this introduction, the Manpower Services Commission is being invited to administer an inservice teacher training scheme at a cost of £20 million to promote curriculum developments related to the Technical and Vocational Education Initiative. The scheme will start this year at cost of £5 million provided by the Government.

Mr Keith Joseph's decision to introduce new legislation comes in response to the recommendations made by the Advisory Committee for the Supply and Education of Teachers.

Sir Keith said that the Government had concluded that the most effective way to secure these improvements would be through the introduction of a new specific grant to support local authority expenditure on most aspects of inservice training.

"Resources devoted to inservice training are not always being used to the best advantage. Therefore we propose at an early date to introduce legislation to extend powers to grant in aid inservice training. The scheme for TVEI related training will make a valuable contribution to inservice training in the interim period and will be a bridging operation until the introduction of the new arrangements," Sir Keith said.

There are five national inservice training priority areas which the Government is funding at an extra cost of £7 million. They are management of schools, craft design and technology, mathematics, special educational needs and multicultural education.

The expansion of the YTS was described by Mr Lawson as a major step towards the objective of ensuring that every youngster under the age of 18 will either be in full-time education, in a job, or receiving training, with unemployment no longer an option. There was relief that he did not announce imposition of Value Added

Portsmouth may face 45 redundancies

by Karen Gold

Portsmouth Polytechnic governors were this week considering plans for up to 45 voluntary redundancies in order to meet a projected financial shortfall of £750,000 in 1985/86.

The National Association of Teachers in Further and Higher Education has been having consultations with Hampshire, the polytechnic's local authority, over the redundancies and says as many as 65 jobs have been mentioned in order to allow for restructuring. A Nafhe branch meeting has voted to oppose any job losses, and to consider what actions might be applied.

The problem arises partly because of falling resources at Portsmouth and also through pressures from the local authority for the polytechnic to move towards the nationally-promoted student-staff ratio of 12:1. Portsmouth, unlike other polytechnics, has had no significant loss of staff in recent years, and its management opposes moving to 12:1 on the grounds that it would affect quality.

The management paper to the governors will argue that the polytechnic needs an additional £1.2 million to meet its supplies and services budget. Governors will be asked to request Hampshire to meet that partly by allowing the polytechnic to spend an extra £750,000 and partly through job losses.

Mr John Foster, Nafhe branch secretary at Portsmouth, said that the union rejected totally the idea of moving to a 12:1 ratio, as did the Portsmouth students union. "We don't agree with 12:1 for the whole of public sector higher education. We also think Portsmouth won't be able to cope with those sorts of numbers and courses will be lost."

Inservice training for secondary schools is no less important if teachers are to keep pace with rapid changes in science and technology, the report says. Local authorities will be responsible for identifying and responding to the training needs of serving teachers. The Government has introduced a limited scheme of grants for inservice training in certain priority areas. Under this scheme courses will be provided in schools for heads of science departments and for science coordinators in primary schools.

Science 5-16: a statement of policy. Department of Education and Science. HMSO. 1984. 12p. 50p.

Patricia Santinelli on the Budget implications for youth and teachers

Employers to share YTS costs

The Youth Training Scheme is to be expanded to two years from 1986 at a cost of £125 million and £300 million from 1987 provided that employers agree to pay a fair share of the costs.

The Chancellor of the Exchequer said in his Budget speech that the expenditure would be partly offset by savings in social security payments—this makes the real costs £65 million in 1986 and £150 million in 1987—and the ending of the Young Workers' Scheme in March next year.

The Chancellor did not however mention the £200 million savings achieved through underspending on YTS this year. The cost was only £800 million as opposed to the anticipated £1 billion.

Consultations with employers on the share of the cost to be borne by them, the quality of the scheme, and the level of trainee allowances are to be held by the Department of Employment through the Manpower Services Commission. These are due to end by June so that a second year is available to as many as possible of the 16-year-olds leaving school this year.

If employers do agree, and there is considerable doubt about this because earlier discussions resulted in negative reactions from the Confederation of British Industry, YTS would offer 16-year-olds two years training and 17-year-olds one year. This would have the effect of removing all under 18-year-olds from the labour market

and the unemployment statistics. In 1984, 350,000 young people were on YTS, 420,000 in jobs, 220 were unemployed and 65,000 were in a category described as economically inactive.

The Chancellor also announced the expansion of the Community Programme, the MSC scheme aimed at the long-term unemployed. The programme is now to offer an extra 100,000 places, bringing the total to 230,000, at an additional cost of £140 million in 1985 and £460 million in 1986. The real costs after savings on supplementary benefits are roughly £70 million and £230 million.

The extra places will be offered from June 1986 to 18 to 24-year-olds who have been unemployed for six months or more and other adults who have been unemployed for over a year. No mention is made of increasing the programme's training element further. Mr Nigel Lawson said that the existing YTS provides foundation training and preparation for work. The expanded scheme would also involve occupational training for both the employed and unemployed.

"In the long run we would expect employers to meet the full cost, as those in other countries do, but I recognize that such a major change in attitudes may take some time. I am therefore prepared to set aside a fixed sum in public funds to launch this new initiative and get it moving in the right direction."

Labour greets Lawson proposals with scepticism

by David Jobbins

A sceptical reaction to the announcement of the two-year Youth Training Scheme came from Labour politicians and trade unions.

A welcome for the announcement came from the director general of the Confederation of British Industries, Sir Trevor Beckett, but he added: "We need to know the financial arrangements and want time to discuss the quality of the training but we will do all we can to make it succeed."

Mr Derek Beits, assistant secretary of the National Association of

Teachers in Further and Higher Education, said the three-month consultation period announced by Mr Nigel Lawson, the Chancellor of the Exchequer, was too short to ensure the union's aim of a high quality two year scheme. "I would question whether the timetable is going to allow us to have a suitable scheme in place for this year's 16-year-old school-leavers," he said.

Youthaid, which also favours a "high quality" two year scheme said the immediate proposals did not have the potential, and it feared the Government was still thinking of withdrawing supplementary benefits from



Hands off: contestants in the first British Polytechnic Sports Association jujitsu championships in Weston-super-Mare where the individual championships were won by John Boyse from Plymouth, and Sally Kingcott from Leeds.

Science teachers 'need to keep pace'

Substantial inservice training will be introduced into schools, according to a Government policy statement published today.

The Department of Education and Science document says the greatest obstacle to improving science teaching in primary schools is the lack of basic science knowledge.

It says local education authorities should promote better primary science teaching through programmes of inservice training, using consultant and advisory teachers, and the advisory service.

Teachers is no less important if teachers are to keep pace with rapid changes in science and technology, the report says.

Local authorities will be responsible for identifying and responding to the training needs of serving teachers. The Government has introduced a limited scheme of grants for inservice training in certain priority areas. Under this scheme courses will be provided in schools for heads of science departments and for science coordinators in primary schools.

Science 5-16: a statement of policy. Department of Education and Science. HMSO. 1984. 12p. 50p.

Plagiarism claim deadline

A research assistant at UMIST who has made allegations of plagiarism has been given a deadline for making a formal statement of complaint to a grievance committee.

Unless Mr Tony Coyle provides his statement by March 27, the grievance committee will be disbanded and a formal committee of inquiry will be established to cover the substance and procedures of the dispute.

Mr Coyle has so far refused to provide a statement because he objected to the grievance procedure being used.

This week the council of the University of Manchester Institute of Science and Technology unanimously endorsed the new arrangements.

The committee of inquiry would have the same membership as the grievance committee with the addition that a separate dean's inquiry, already looking at allegations, will provide evidence. There will also be an observer from the Association of University Teachers.

Two senior academics from outside UMIST will also assist the dean's inquiry. Mr Coyle has been told by Mr Tony Russell, UMIST council chairman: "It has always been the institute's wish that allegations as obviously serious as those which you have made should be thoroughly investigated."

Mr Coyle was advised by UMIST to make a formal statement of complaint last November, before any allegations appeared in the press, and not as stated in *The Times* last week.

Graduate guide

A guide to over 2,500 taught graduate courses in British universities has been published by the Committee of Vice-Chancellors and Principals.

ANTI THIES

Cavouring with history

All Souls historian Denis Mack Smith has a biography of Cavour out next week, 40 years after the Italian government refused to let him see Cavour's papers. They were lost, he was told by academics and cabinet ministers. Then they were found again but unavailable.

When he finally saw them in 1954 he discovered that generations of Italian historians had doctored them to preserve the reputation of their greatest politician.

The man who unified Italy could not be found writing that the king was intolerable, the Etruscans were bastard decadents, Garibaldi and his volunteers deserved extermination, and Italian unification was impossible.

A change of environment

Most organizations asking employees to move offer incentives. Not so the National Environment Research Council, which is lurching oceanographers' at its Taunton laboratory to move to Merseyside when the Devon lab closes later this year.

Taunton researchers asked council secretary Dr John Bowman if he could guarantee the Merseyside lab would still be a NERC establishment in five years time. Dr Bowman: "No." Cynics say this is the council's way of ensuring plenty of volunteers to leave the 900 jobs it plans to lose.

Chartered social scientists peeking over the parapet towards the end of their three year funding freeze should lower their heads again. At a recent ministerial meeting to discuss Britain's contribution to the European space project, Sir Keith Joseph argued for extra-terrestrial money from outside his department's research budget. "But Keith," remonstrated the Prime Minister, "you're still spending £20m on social science..."

Gremlins: bug dial-a-comet

The Halley Hotline, now starring Kent University's achievements at the frontiers of space science, is a telephone recording run by British Aerospace and the Halley's Comet Society. Dial 01-790-3400 and with electronic music and mid-atlantic accent it gives you the latest news on Halley's comet.

But these giant leaps forward for mankind can let you down: accounts of Kent's infrared sighting and cosmic dust experiments are preceded by a recorded apology that until the installation of new equipment the recording's weekly update will only happen once a fortnight.

Seven steps to loyalty

Rather more rigorous than the subscription required by their parent party, a pledge of loyalty is to be extracted from supporters of the Federation of Conservative Students. Inclusion of this clause in their constitution is to be debated at the annual conference, beginning on April Fool's Day, in Loughborough.

Seven principles towards which FCS members will be expected to work are: the monarchy and Parliamentary institutions; individual freedom, free market capitalism; the defence of the realm; territorial integrity of the United Kingdom; the abolition of the closed shop in student and trade unions; and... wait for it... "the rolling back of the frontiers of World Socialism."



What price youth training?

In the absence of the normal plethora of leaks, predicting the outcome of the budget poses a more difficult task than usual. If we assume that, at least nominally, we have a "budget for jobs" then the Youth Training Scheme must figure highly, if only because youth unemployment is the most difficult and apparently insurmountable product of Mrs Thatcher's economic policy.

Despite monumental criticisms the Government still clings to the YTS as its panacea. Here simply those of us who make these criticisms and are accused of being simply "YTS knockers" are in danger of falling to knock the most fundamental flaw in the Government's thinking.

That is, of course, that regardless of the quality of the scheme, the health and safety standards, the curricular level of the allowance, the scheme does not guarantee jobs for young people. It is self-delusion to believe that marching young people on to the scheme cures youth unemployment, it simply removes it slightly from the public eye.

If the training scheme is to continue to exist, for my part, I am quite prepared to continue to strive for the improvement in quality and provision that is vital for it. For any such improvement to take place it is essential that a number of relatively painless, yet, so far, strongly resisted, changes are made. There is still no guarantee of the quality without which neither trainees nor the potential future employers will have any confidence - a role for Her Majesty's Inspectorate perhaps? A much needed change in direction for the area manpower boards is also long overdue so that they can have a genuine monitoring role to ensure health and safety rather than being rendered totally ineffective by the mountains of paperwork with which they are presently burdened.

The suggestion put forward by the youth lobby of bringing geographical areas in line with the local authorities may be commonsense. If the partnership is to work to the advantage of all parties. Most important, there is a need for statutory youth representation, with the legitimacy and professionalism provided by the National Union of Students and the British Youth Council. Representation is a prerequisite to confidence and constructive development. Also, of course, the area boards must be given greater autonomy if the Manpower Services Commission expects them to deliver - without it how can they be responsive to local need?

As regards the contents of the scheme, some of the recommendations of the Swann report provide useful indications and principles which could be of value to the YTS. There are also major opportunities, now sadly neglected, from promoting sexual equality.

Perhaps the most frequently voiced fear from the education world is the sudden involvement in non-advanced form of education of those ignorant of educational policies. What I think from, however, is the acceptance of such changes as being anything more than a step down the road.

No improvement is not the whole answer. Only creation of jobs and the guarantee of useful paid employment can be.

Lesley Smith

The author is vice-president education of the National Union of Students.

Right-wing students plan revenge

by David Jobbins

Right-wing students aim to take revenge on their more moderate critics within the Federation of Conservative Students.

A constitutional change is likely to end minority representation on its national committee. At present, while the committee is dominated by the libertarian right, the single transferable voting system virtually guarantees places for three minority representatives.

But vice chairman D. J. Saunders and chairman Marc Henri Glendening are proposing that the federation's annual conference in Loughborough next month should abandon this for another system which will effectively give all seats to the majority.

The conference is also expected to take a tough line with Conservative Student Unionists, the group formed last year to combat the anti-National Union of Students excesses of the FCS. The CSU this week published its alternative plan for the NUS, whose conference begins next Monday in Blackpool.

The NUS conference is likely to be dominated by the row among Conservative students over whether they should work within the NUS for its reform or use every means to attack it politically from the outside.

Chaos is threatened by the FCS tactic of standing up to 10 candidates in each of the elections for the NUS national executive, but steps are being

taken to minimize provocation and the expected reaction from the extreme left.

The CSU, which is standing its own candidates for the executive, including Mr Chris Davies for president, believe that the NUS should concentrate more on educational issues, and support for "street-level" campaigns, offer better value for less money, and continue the democratic reforms that led to the introduction of cross-campus ballots.

In particular it wants to see an end to the way delegations are mandated so that delegates are obliged to vote against their consciences or face the consequences. Coupled with CSU's support for individual membership, the CSU believes its proposals offer a real "new deal" for the NUS which will

carry a more cost-effective, compact and respected organization into the next decade.

NUS president Mr Phil Woolas has warned Conservative Party chairman Mr John Gummer that if he cannot stop the FCS's "stupidity" the NUS will cease to recognize the FCS and back the CSU.

There are indications that some Conservatives are fast losing patience with the current FCS leadership, and Mr Gummer may well be critical when he speaks in Loughborough next month.

Mr Woolas believes there is evidence that MPs such as Mr John Carlisle and Mr Harvey Proctor are being used by right-wing Conservative associations to provoke the left.

Universities may block 'too vague' social work change

by Felicity Jones

The universities look set to resist plans to change to a single qualifying award in social work.

Their dissatisfaction was made clear at a consultation exercise held by the Central Council for Education and Training's proposal to merge the Certificate in Social Service and Certificate of Qualification in Social Work into one award with one employment-based and one college-based route.

The council says it is trying to reduce the frustrations which arise from the existing awards which make it hard for employers to use staff flexibly.

Professor Robert Pinker of the London School of Economics, representing the joint universities committee, said the council's proposals were vague on issues and resources.

For the institutions which provide them and since there would be no extra money forthcoming, the change would mean a reduction in student numbers. "If you look across the board at

other professions there is no other which makes such demands on its students and colleges and still cannot make up its mind about what it wants," said Professor Pinker.

He said the probation service was most specific about what it wanted from the colleges and "does not change its mind every minute".

"A great deal of college time has been spent on abortive efforts in social work. In my institution the general staff/student ratio is 1:4:1 and a full social work course would be a disaster for social work."

He did not see how it could go and tell them about the current plans.

Various reports over the past decade have come out against such a move and the universities are wary that CCETSW's plans would lead to the employers having too great a say in the education and training.

The Council for National Academic Awards also expressed concern that the proposals were "employer-led" rather than "profession-led" and could not identify the educational level at which the new award would be placed.

Partnership 'needs practice'

Regional consultative committees on social work education should be established to advise on courses and link practising social workers with academic staff, heads of social work certificate courses have recommended.

The standing conference of heads of Certificate of Qualification in Social Work courses has published a paper on education and training for social work in which it calls for a network of regional committees to advise on education, necessary resources and professional/academic partnership. Members of the committees would include social workers, social work teachers, local authorities, unions and professional associations and consumers.

The paper poses a set of policy questions for those in social work education. Who is to be eligible for social work education and on what criteria should they be chosen? What selection procedures should be used and how should they be controlled? What would happen to social services workers failing to gain a social work course place?

It calls for many more preparatory social work courses for those with

non-traditional academic backgrounds, extended access and an open opportunities policy for entry, and mandatory awards for all social work students.

Social work education must be a partnership between educators and service providers, the report says. Educators must be more flexible than they have been in the past and access. "They will also need to demonstrate that 'academic freedom' is not used to justify an imperviousness to the legitimate expectations and concerns of social work service agencies."

The agencies must avoid being seen as intellectual and anti-theory, and must provide adequate staff and resources. It continues, "If the provision of these resources does not command a sufficient priority within agencies, social work education of the quality and quantity required by a validating body - and by a profession - simply cannot be provided."

Pressure is increasing on social workers to save money, transfer responsibility from the state to private careers, achieve more control of clients, and be more accountable, it says.

PCAS launch is fixed for May

by Karen Gold

The Polytechnics' Central Admissions Scheme is likely to process 50 per cent more students than first expected, use a national information network and eventually include teacher training students.

The scheme will be launched officially in May for all polytechnic degree applicants for autumn 1986. Mr Tony Higgins, its chief executive, said that the number of predicted applicants to polytechnics had increased from an initial 115,000 to almost 170,000.

The PCAS had decided to print 300,000 copies of its guide to applicants and 400,000 application forms - the same number as the Universities' Central Council on Admissions, which also has around 170,000 applicants.

The polytechnic guide and forms will be available in May and the scheme will follow the same timetable as the UCAS one, with an applications deadline of December 15 and an extra application and clearing house running later in that academic year.

There are plans to update the clearing procedure from the UCAS model with new technology - Mr Higgins is already having discussions about putting all data on remaining available polytechnic places in August 1986 on to a national network such as Prestel or Oracle.

Applicants who had failed to find a place until the "clearing" stage would then be able to see immediately on their school, local education authority or home network what places were available in their subjects.

Mr Higgins hopes to complete negotiations for this by the summer, but in any case the PCAS would have telephone lines working 17 to 18 hours a day for clearing in order to speed up the process, he said. Polytechnic admissions tutors, schools or careers officers would also have to be available for long periods to make the system work, he said. It is understood that teacher educa-

tion's Central Register and Clearing House will also become computerized and compatible with the PCAS and UCAS systems. Mr Higgins said that he would expect the system to include the voluntary colleges within five years.

The first handbook will allow applicants to apply for sub-degree courses only at polytechnics to which they are also applying for degree courses. It will also list all other public sector institutions where degree courses are available, and all other courses at the 30 polytechnics.

The PCAS is committed to examining this summer whether larger colleges of higher education can be included in the system, as part of its agreement with the Department of Education and Science which supplied one third of the setting up costs - £210,000 out of £625,000. Running costs, which the polytechnics must meet themselves, will be around £1,100,000 a year, though using a national network would increase the price.

Another DES condition was that the system should be entirely compatible with UCAS. There are minor differences: PCAS applicants will have four choices instead of five, and will order them alphabetically rather than by choice, as UCAS applicants. There is also an emphasis on mature applicants in the guide and the application form.

Applicants will be able to go through both systems to the end, so there will be a possibility of candidates accepting one place in each system and only appearing at one. The guide will discourage this, and it will prevent multiple acceptances at polytechnics. A video of how the PCAS system works has been made by Leeds Polytechnic and is to be distributed to local authorities who may copy it for schools' use. Polytechnic prospectuses are also to be published earlier, before the end of the summer term, so that they are available to applicants simultaneously with the PCAS form and guide.

Employers have poor record on training, says survey

Employers say one thing and do another when it comes to training for adults, a piece of research sponsored by the Manpower Services Commission has revealed.

A sample of 500 companies showed that 76 per cent of private employers are involved in some sort of training, but the length of that training is abysmal compared to other European countries.

The average off-the-job training is 16 hours compared to 40 hours minimum with some of West Germany's largest employers.

Private business spent a mere 0.15 per cent of its annual turnover on training which is under £4 a week on each employee.

Mr Bryan Nicholson, MSC chairman, told delegates to an open learning conference in Birmingham last week: "Too many employers look upon training as a cost to be minimized rather than an investment to be optimized."

The survey carried out by IFF

Research looked at business performance to see how many of the companies which scored as higher performers when it came to output, staff increase and new products, had done adult training.

It found that 9 out of 10 of those top performers did some training involving half of their employees while among the low performers little over half had been involved in any training and less than one in five of the workforce had been involved.

The unsuccessful businesses decreased their training over the past five years by 20 per cent while the high performers increased theirs by 25 per cent.

Despite this poor record, employers say that adult training is essential investment and two out of three have updating training contained in their corporate plan.

The MSC will be using the message that training excellence is associated positively with business performance as part of its national campaign.

Open College crosses county boundary

Discussions have been held which would bring together polytechnics and colleges into the next, far-reaching Open College so

The Open College of the North of England providing alternative access to higher education for people without A-levels would involve both Sheffield and Lancashire Polytechnic and other educational colleges across northern county borders.

It would extend the choice of Open College students from Lancashire which was the first of the Open Colleges and link up with the new South Yorkshire open college which was opened in September.

Mr Roy Bailey, dean of the faculty of education at Sheffield City Polytechnic said: "South Yorkshire's

federation had been agreed in principle and the administrative details with Doncaster, Rotherham, Barnsley and Sheffield colleges and adult education institutes would be worked out in the next few weeks.

A preliminary meeting has been held with the north-west federation to explore ways in which we might work together," he said.

Mr David Moore, the founder of the North West Open College and Mr Eric Robinson, Lancashire Polytechnic director addressed a meeting in Sheffield about the plans but Lancaster University, the other partner in the north-west, has still to become involved officially.

The advantage to the northern open college is that it will be able to make use of the considerable course

David Jobbins reports from the TUC women's conference

Loans 'would damage chances'

Student loans would be just one more barrier to post-school education and better career prospects, the TUC women's conference has warned.

Delegates to the conference in Southport last week declared their opposition to loans either in place of the present mandatory awards or in adult training.

Ms Mary Tylee (Engineers and Managers Association) said a necessary pre-condition of equal participation in higher education was a fair system of financial support.

"The main effect of a loans scheme would be that young people from working class homes would not be able to go into higher education because of the prospect of having to pay the money back," she said.

"Women would be particularly affected because they tend to join the labour market - even after higher education - in lower paid work or in caring industries such as nursing and teaching."

Ms Susannah Lash, proposing the motion for the National Association of Teachers in Further and Higher Education, said that financial and moral pressures, especially on mar-

ried women seemed to be conveying the message that they had no right to be in the job market at all, but "should really be at home washing someone else's socks".

She complained that the trend of policies in employment was away from positive discrimination and towards equal access. The unions must not only demand that education and training was available but should influence its character.

A sustained assault on the "mountain of discrimination" facing women was demanded by Ms Joanna de Groot (Association of University Teachers) when she called on delegates to develop the initiative taken in Women into Science and Engineering year through the education system.

Women were underrepresented at all levels in the engineering and scientific professions. "We do know our place - our place is at a lathe, in the work place, on an oil rig. If the Norwegians can employ 500 women in their part of the North Sea, there is no reason the British cannot do the same."

A second motion on WISE year

was also adopted by delegates - calling for positive action in training to be maintained and extended.

Ms Patricia Leman (Nafthe and the TUC women's advisory committee) warned that the current climate in the industry was such that the possibilities of protecting existing initiatives for women, let alone extending them, was very small "unless we can convince this and subsequent governments that support is absolutely essential" for training and retraining.

Trade union support for peace studies in colleges and schools was demanded by conference delegates.

They backed a move from Nafthe calling for the introduction by the TUC general council of a six-point programme directed at the Department of Education and Science, local authorities and trade unions and designed to raise the profile of peace studies.

Ms Dallah Hoffman (Nafthe) said peace education was an essential part of the process of securing world peace, both in colleges and schools, and in trade union education.

Role of MRC centre under review

by Jon Turney

Science Correspondent

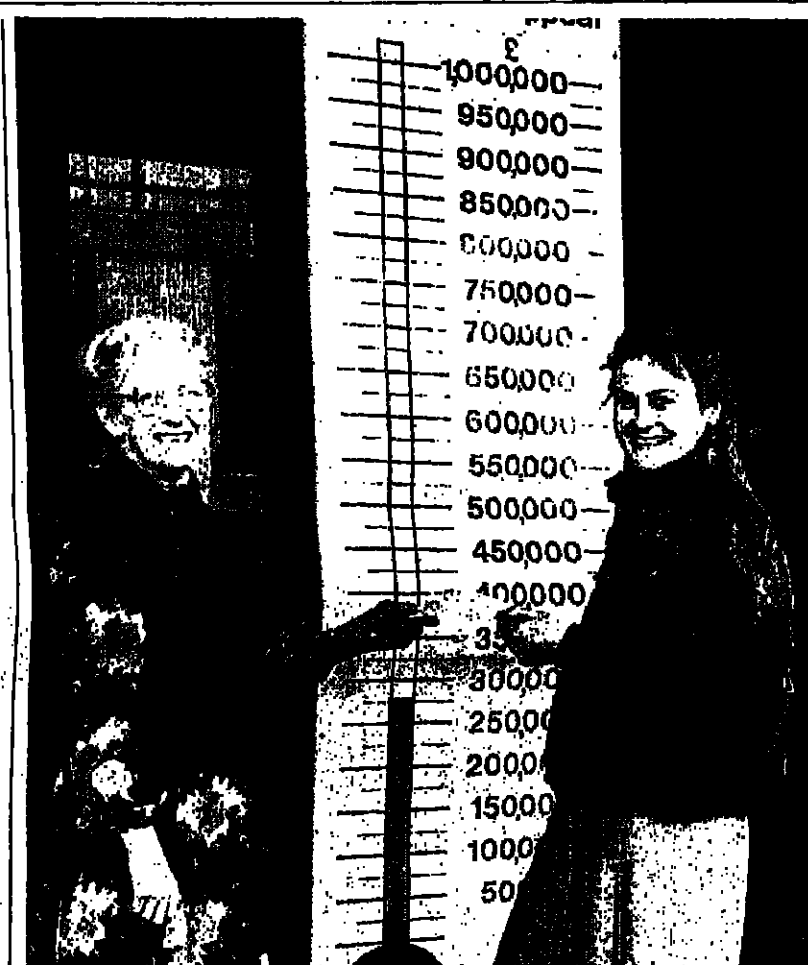
The Medical Research Council is reviewing the role of its largest research establishment, the £10 million-a-year Clinical Research Centre in Harrow.

The centre, set up in 1970, adjoins Northwick Park Hospital in Harrow and accounts for the bulk of the MRC's clinical research - working directly with patients. It accounts for nearly 10 per cent of the council's £120 million annual budget. Like all MRC units, it is suffering cuts in funds for laboratory equipment and supplies, and is awaiting news of its full allocation for the coming year.

The council is looking at the centre's work well in advance of the retirement of its present director, Sir Christopher Booth, who goes in four years. It has set up a committee to review the CRC's original concepts and objectives, and see what changes need to be made.

Although it dwarfs all other council establishments except the National Institute for Medical Research in Mill Hill, North London, the CRC is still barely large enough to ward off critics' charges that clinical research is a poor relation within the council. They say work with ordinary patients' everyday diseases lacks the glamour of research in other council establishments like the Laboratory for Molecular Biology in Cambridge.

The review group, chaired by Sir Michael Stoker, president of Clare Hall, Cambridge, will report to council within a year. Other members include Sir Brian Maller, a lay member of council, Professor June Lloyd, chairman of the MRC's systems board, Dr Malcolm Godfrey, MRC secretary, and Professors Ian Bouchier of Dundee University, Peter Morris of Hammermith Hospital and Keith Peters of the Royal Postgraduate Medical School.



Actress Dionne Inman, a chemistry graduate from Bath University, presents a cheque for £100 to Pat Bishop, the university's director of arts and drama, in response to a £1 million appeal to build an arts centre at the university. The appeal has already raised £280,000.

Courses

KINGSTON POLYTECHNIC MPhil/PhD in ECONOMICS

Applications are invited from graduates and final year undergraduates interested in undertaking full-time or part-time research leading to the award of a MPhil or PhD degree of the Council for National Academic Awards.

Research areas for which supervision is currently available include:

- Labour Economics
- Industrial & Financial Economics
- Economics of the Firm
- Public Economics
- Macroeconomic Modelling
- Forecasting
- French Social & Political Theory
- The Politics and Economics of Eastern Europe
- Political Economy of Socialism and Capitalism
- Socialist & Liberal Political Theory

Training in the use of computer facilities, the services of a computing assistant and a specialist project librarian are available.

Application forms can be obtained from Mr J Davidson, Administrative Officer, School of Economics and Politics, Kingston Polytechnic, Penrhyn Road, Kingston upon Thames KT1 2EE. Tel 01-549 1366.

(132)

Poly costs rise and fall dramatically

by Karen Gold

The cost of educating a student in a polytechnic changed enormously in 1983/84, with some institutions cutting their cost per student by up to 8 per cent - nearer 13 per cent in real terms - and others increasing their costs by more than a quarter.

The latest Polytechnic Finance Officers' figures for 1983/84 show Brighton Polytechnic making the biggest cut in unit cost - down 8.39 per cent. Wolverhampton's cut was nearly as large - down 7.04 per cent - followed by Wales, down 5.07 per cent.

The Polytechnic of Central London increased its costs the most - in 1983/84 its students cost 37.91 per cent more than in 1982/83 - followed by City of London, up 27.37 per cent. These outside increases are partly a result of the Inner London Education Authority's generous topping-up, but also because of higher costs in London.

The scale of the changes also means large jumps up and down the league table of polytechnic unit costs. North East London keeps its place at the top. The gap between it and its nearest neighbour has widened, but its percentage increase is small - 1.46 per cent, an actual decrease when inflation is taken into account.

South Bank has moved up from third to second place, replacing Brighton which fell to fifth. Teesside has fallen from fourth to eighth, Coventry from fifth to tenth and Wolverhampton from twelfth and twenty-first in 1982/83 down to the bottom of the table. All those polytechnics have cut their unit costs not only in percentage but in actual figures, some

by over £100 per student.

In the other direction the most dramatic leaps come from Central and City of London again: up from the bottom (cheapest) places in 1982/83 to fourth and thirteenth respectively. North London has gone up from ninth to third; Portsmouth is up from twelfth to sixth and Liverpool up from twenty-eighth to eleventh. The big city polytechnics - Leeds, Leicester, Sheffield, Trent, Newcastle - remain in the lowest cost group, as do Plymouth and Bristol.

The finance officers point out in the introduction to their survey of polytechnic expenditure that the unit cost figures will be different from those of the National Advisory Body, because the latter's programme weightings are different.

They also say that comparisons of institutional efficiency must take into account the size, age and number of sites, the academic and staff profile, and the balance of work between advanced and non-advanced courses. Staff numbers used in calculations were based on those in post in March 1984.

The breakdown of costs into subjects shows that vast differences still exist. Engineering at City of London costs almost twice as much as elsewhere, and three times as much as at Manchester (the lowest). Architecture at Leicester costs three times as much as it does at Sheffield; teacher education at North Staffordshire costs almost twice as much as everywhere else, where costs are relatively standard. Visual arts students cost most at Leeds - almost twice as much as at Kingston.

The research income also varies: Central London, with £1,230,000, earns the most from externally funded research; next comes Newcastle with £978,000 and Brighton with £914,000. Spending on capital work shows that Birmingham did best with £3,486,000, followed a long way behind by Oxford with £2,167,000 and NELP with

£1,709,000. The polytechnics with least capital spending in 1983/84 were Thames (£91,000), City of London (£81,000) and Leicester (£185,000). Polytechnic Finance Officers' Group Polytechnic Expenditure 1983/84, £11, is available from the Bursar, Brighton Polytechnic, Mithras House, Lewes Road, Brighton BN2 4AT.

Rank	Polytechnic	1983/84 unit cost in £s	1982/83 unit cost	Percentage increase/decrease
1	North East London	3,784	3,710	+ 1.98
2	South Bank	3,528	3,367	+ 4.72
3	North London	3,382	3,088	+ 8.52
4	Central London	3,287	2,589	+37.91
5	Brighton	3,253	3,551	- 8.39
6	Portsmouth	3,180	3,028	+ 5.02
7	Thames	3,136	3,123	+ 0.42
8	Teesside	3,128	3,281	- 4.05
9	King's College London	3,128	3,128	0.00
10	Sunderland	3,102	3,119	- 0.55
11	Liverpool	3,020	2,572	+17.42
12	Coventry	3,018	3,132	- 3.64
13	City of London	3,005	2,350	+27.87
14	Oxford	2,970	2,871	+ 3.46
15	Kingston	2,954	3,013	- 1.98
16	Middlesex	2,916	3,083	- 5.40
17	North Staffordshire	2,904	3,045	- 4.64
18	Wolverhampton	2,875	2,965	- 3.04
19	Huddersfield	2,863	2,805	+ 2.07
20	Leicester	2,856	2,802	+ 1.93
21	Lancashire	2,840	2,871	- 1.08
22	Newcastle	2,828	2,705	+ 4.58
23	Trent	2,810	2,702	+ 4.00
24	Sheffield	2,780	2,698	+ 3.04
25	Plymouth	2,748	2,674	+ 2.69
26	Leeds	2,735	2,683	+ 1.94
27	Manchester	2,657	2,480	+ 6.71
28	Bristol	2,619	2,758	- 5.07
29	Wales	2,619	2,738	- 4.28
30	Birmingham			

Durham teacher training drop

by John Yates

Poor career prospects and bad morale in the teaching profession are blamed for a big drop in the numbers of Durham graduates taking postgraduate teacher training (PGCE) courses in a report published this week.

Durham University's careers advisory service's annual report says the total number of Durham graduates taking a PGCE course in the United Kingdom fell from 133 in 1983 to 82 in 1984.

Ten years ago 21 per cent of Durham graduates went on to PGCE courses. The percentage has now fallen to 7.5 per cent, but Durham's own PGCE course had a record year with 151 students completing the course, up from 139 in 1983.

The report notes that due to the reduced student intake of 1981 the total number of students graduating in 1984 fell by 7.4 per cent from 1,330 in 1983 to 1,231 in 1984.

The report says there was a marked increase in the number of science graduates joining industrial companies, reflecting the greater availability of jobs for physical scientists.

A quarter of Durham's graduates started their careers in the public sector. But commerce remained the most important sector of employment, attracting 46 per cent of those entering employment.

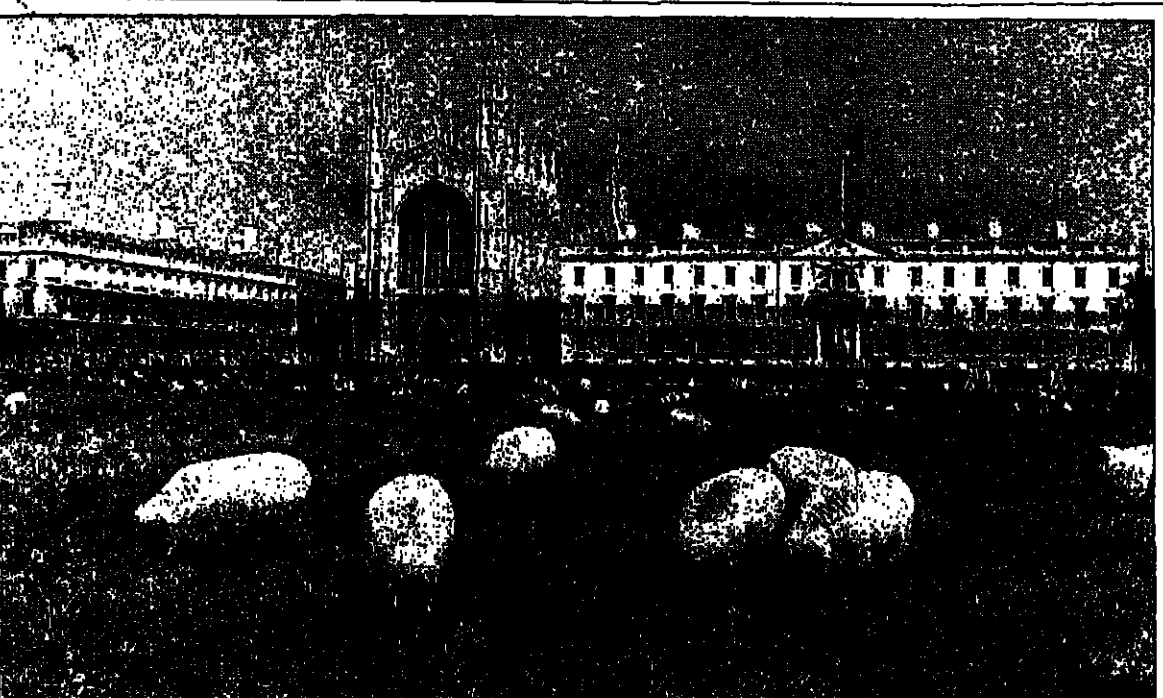
Power graduates than in 1983 went into banking, insurance, entertainment and leisure but the biggest change was in chartered accountancy, down from 105 in 1983 to 86 in 1984.

NUS clamps down on anti-semitism

Leaders of the National Union of Students have acted decisively to stem early signs of anti-semitism.

An emergency executive motion tabled for next week's NUS conference in Blackpool reaffirms that the banning of Jewish student societies, for whatever reason, is anti-semitic. It declares the NUS's determination to take a tough line with the union leadership at Sunderland Polytechnic, which has banned its Jewish society, in the hope that this will prevent a handful of similar moves elsewhere from going any further.

The NUS executive will recommend Sunderland's suspension - but this punishment will only become effective if the union's Christmas conference



Sheep may safely graze on Scholars Piece on the west side of Cambridge University King's College 'Backs'. This is one of the 600 photographs taken by Tim Rawie who wrote and designed an illustrated guide *Cambridge Architecture* which was published yesterday. The author read architecture at Downing College, Cambridge and his book sponsored by Cambridge Consultants Ltd, is said to be the first complete survey of the city's architecture. It is published by Trefoll Books Ltd, at £14.95.

Americans back Freddie Three

American money will boost work at the Turing Institute in Glasgow, set up last year by artificial intelligence pioneer Professor Donald Michie as a centre for advanced computing research.

The Institute was founded at the University of Strathclyde with backing from British companies, to embody Professor Michie's belief that the way to advance artificial intelligence research is through a single multidisciplinary centre. This is in contrast to the model promoted by the Government's £350 million Alvey programme for computer research which is more dispersed.

Professor Michie's venture has some Alvey funds, but has now attracted a \$300,000 grant from US Westinghouse corporation. Unlike Alvey funds, this will be for work which is not directed toward immediate application. It will be used to develop a new version of the robot system, Freddie, developed at Edinburgh University in the early 1970s, but mothballed since then through shortage of funds.

The Westinghouse funds follow the corporation's successful use of a commercial computer package, Expert Base, developed under Michie's guidance.

Little room at the top for women, says survey

Only a handful of women hold top senior educational posts or are represented on internal college committees compared to men in the London and South East Region, according to a survey completed by the area's regional advisory body.

The survey, as yet unpublished, which is based on near 70 per cent response by 130 polytechnics and colleges shows there are two women principal lecturers to 64 men, nine women vice principals to 75 men, and only 43 female heads of departments to a total of 446 males.

The picture hardly improves at lecturer level. There are, for example, only 107 female principals to 751 male, and 435 female senior lecturers to 1,621 males.

At the lecturer Grade II/Senior lecturer level, women still represent less than a third, with 388 to 1,121 males. At lecturer grade II, females represent just under half, or 768 to 1,758 males. But at lecturer Grade I, there are some 1,194 women to 1,720 men.

As far as internal college committees are concerned, the survey found that on college governing bodies there were 117 women and 471 males, on academic boards 319 women to 1,288 males and on faculty boards 330 women to 1,136 males.

The largest concentration of post heads of departments is in engineering (80), business (71) and general studies (58). In the categories ranging from principal lecturers to lecturer Grade I, the highest concentration of women is in the social sciences, business and general/adult education. But again at principal lecturer and senior lecturer level, there are still more men in each of these categories than women.

The position improves slightly at lecturer Grade II and I. In the latter category taking social sciences, business and general adult education, there are definitely more female, especially in business where the number of women is roughly double that of men.

The latest reform again puts Cambridge out of phase with Oxford University, which has also abolished seventh term entrance, but has retained its fourth term examination. Some Cambridge colleges, however, the Oxford model, but the two universities have now agreed to this year's November exam will be the last of its kind.

Candidates will take the STEP exams in May in a maximum of two subjects. They can either take them in place of Levels, or they can take one of each. The STEP exams will be marked by examining bodies, although

Dislike of loans 'universal'

by Olga Wojtas

Research by the National Union of Students into countries which use student loans systems shows that one thing in common: they all want end loans.

This claim was made by Mr Simon Morgan, an NUS vice president, at the union's Scottish conference in Dundee last weekend. Mr Morgan revealed that NUS research officers had travelled across Europe and North America investigating loans systems and are now compiling a report to be presented at the NUS national conference.

The Tories had cited loans schemes in Sweden, Denmark and the United States as potential models for Britain, said Mr Morgan. But NUS research had shown that Swedish loans were grossly inadequate, with large numbers of students taking part-time work. "It is accepted by the Swedish government that it has restricted access to a working class people, to women's mature students," he said.

Loans had created chaos in Denmark with the system being changed four times, he added, and unemployment in the United States had led to a default rate on the average £100 debt which was a national scandal. "Loans without a doubt are against everything that NUS has ever stood for," said Mr Morgan.

The conference unanimously passed a motion opposing any attempt to introduce loans, and calling for a "nationwide shutdown of the post school education system in the event any loan scheme being introduced". Delegates also called for a concerted fight against continuing cuts in education expenditure and instructed the executive to organize a series of college occupations throughout the country.

The executive was also instructed to seek support for student actions from the general education community and the trade union movement. In Mr Woods of the Scottish Association of University Teachers told the conference that lecturers were very concerned about loans proposals. "They were 'pathologically inadequate', said, but it would be quite immoral to worsen students' financial position by replacing grants with loans.

The conference also attacked the Youth Training Scheme, which one delegate described as "in effect the reintroduction of National Service". YTS was forcing young people into jobs they didn't want and would not accept in any other circumstances. The conference voted overwhelmingly to campaign for trade union withdrawal from area manpower boards and all other Training Scheme. However, Mr Alex Mackay of Aberdeen University condemned the move as "sheer piggy".

Dr Evans termed such donations as "strategic giving", pointing out that they could achieve a "pace-setter effect" similar to the impact that prestigious private universities have in the United States.

Concentrating research efforts in a small, select group of universities would help Canada build the research talent needed for international effect, noted J. Fraser Mustard, president of the Canadian Institute for Advanced Research and a member of the recent Bovey Commission, which reported on the future of Ontario University.

Access at all costs criticized

from Christine Tausig

Accessibility at all costs has eroded undergraduate university education in Canada, Douglas Wright, president of the University of Waterloo, told a recent conference on financing Canadian higher education and university research.

Class sizes had become "out-rageous", Dr Wright told the conference, which was organized by the *Financial Post* and Air Canada. Students should bear more responsibility for the cost of their education, Dr Wright told about 200 delegates. Tuition fees could be doubled or even tripled with little impact on accessibility, he stated. He added that a student's decision to attend university had more to do with cultural and social attitudes that developed in early teenage years than with tuition costs.

Conference participants - mostly academics, business leaders and government officials - offered a range of practical solutions to a difficult question: who should pay for Canada's universities? Like Dr Wright's answer, most were controversial.

In the end, there was only one consensus: Canadian universities face a desperate need for more money and the government is unlikely to be the source.

Canada's problems were similar to those experienced throughout the commonwealth, noted James Downey, president of the University of New Brunswick. Governments everywhere were attempting to decrease funding commitments to universities in order to save money. The pressure was on all universities to "get out and hustle more money", Dr Downey remarked.

Many participants at the conference called on the corporate sector to provide more funds, particularly for research.

Before business leaders invested in higher education, they must be told more about the value of universities' activities. Mr Adam Zimmerman, president of Noranda Inc, told the conference, "Industry is most likely to increase support where it sees a direct benefit for itself," he said. "If the benefits are obvious, the question of who pays will not be terribly difficult."

If Canadian businesses invested in the country's universities, they should target their donations to a small group of potentially top quality international universities, advised John Evans, former president of the University of Toronto and now a corporate chairman. "Corporate support could make a tremendous impact if used selectively," he argued. "But it will not have any impact if it is given to universities across the board."

Dr Evans termed such donations as "strategic giving", pointing out that they could achieve a "pace-setter effect" similar to the impact that prestigious private universities have in the United States. Concentrating research efforts in a small, select group of universities would help Canada build the research talent needed for international effect, noted J. Fraser Mustard, president of the Canadian Institute for Advanced Research and a member of the recent Bovey Commission, which reported on the future of Ontario University.

Irish discuss cross-border cooperation

from John Walsh

An important conference will be held in Dublin, probably in mid-May, to discuss cooperation in higher education in both parts of Ireland.

This follows official publication of a report which examines the existing links between the two higher education systems and suggests how they can be developed.

It was written by Professor Gareth Williams of the University of London's Institute of Education for the Dublin-based National Economic and Social Council and the Northern Ireland Economic Council.

Professor Williams predicts that by 1996 there will be a rise of up to 50 per

cent in the demand for higher education in the republic and a decline in Northern Ireland. More students from the republic will tend to go north and Professor Williams suggests measures to facilitate this cross-border flow.

He also suggests that:
● the Open University be allowed to recruit students directly in the republic;
● a distance learning authority in the republic should cooperate with the OU in adapting course materials where necessary;
● special attention should be given to the north-west;
● cross-border cooperation should be encouraged in areas like in-service training in computer applications;

● an Irish academic foundation should be established with the aim of stimulating research, postgraduate study and cross-border academic contact.
Urging the holding of an early conference, the two councils said it should involve all relevant educational interests in the republic and Northern Ireland. It should make recommendations about what should be done to give effect to the ideas and suggestions contained in the study.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

The Dublin government welcomed the report. It said that existing links could be developed to the advantage of students and educational institutions and in the interests of creating a better understanding between all people in north and south.

overseas news

West Germans face reality

from Barbara von Ow

medical profession, until recently considered among the most secure and lucrative in Germany. However, a leading medical journal has forecast that by the mid-1990s some 40,000 of an expected 190,000 doctors will not be able to find jobs. Furthermore average incomes of doctors, which dropped by four per cent last year, is expected to fall further.

Yet all this bad news so far has not relieved pressure on West Germany's beleaguered lecture halls. Instead student numbers soared by another 5.8 per cent last winter term, however in an interesting development only the number of male first-year students grew (2.4 per cent) while that for women dropped by 3.9 per cent. The rectors' conference expects the rise to continue with overall numbers to reach 1.5 million students at the end of the decade.

However, one indication that the worsening job prospects are affecting student behaviour is the rise in the number of school-leavers with the *abitur* who opt against enrolling in university. Last year a record 15.9 per cent of *abitur* holders (23.8 per cent women) decided against a degree course, with another 22 per cent saying they were undecided. In 1971, the figures were six per cent and seven per cent respectively.

More and more school-leavers are opting for vocational training, although openings are increasingly scarce. In fact, a special government commission has called on German trade and industry to use the "immense potential" of *abitur* holders and expand training facilities.

Last year a record 80,000 or 28 per cent of all applicants for vocational training facilities, mainly in the banking and industrial trade sectors, were gymnasium-trained, and the government expects the figure to rise to over a

third in 1985. However, over a fifth break off their training in mid term and over 40 per cent still go on to university after their training, which is evidently still viewed as an interim solution.

Generally, it seems that the worsening prospects have not destroyed the idealism of German students. According to a study commissioned by the government, almost half the students polled in 1982/83 had followed their personal talents and interests in choosing their subjects. One third considered personal interests and professional choices equally important while only nine per cent had selected their course solely because of secure job prospects. "Generally, the mood is one of idealism, orientated towards autonomy and self-fulfilment," the study, conducted at the University of Konstanz, concluded.

Similarly, German students are increasingly willing to make compromises in their career plans. Most of the students questioned were prepared to make financial concessions (86 per cent); to accept long commuting hours or moving to another city (72 per cent); or to spend some time working in another area before finding a suitable job (60 per cent).

The sombre-minded assessment was accompanied by surprising political moderation, with 56 per cent of the students describing themselves "middle of the road" in their political views, with 31 per cent saying they were "left wing" and only five per cent "on the right". Some 85 per cent rejected any use of violence, while only nine per cent expressed an interest in active university politics.

Meanwhile, another study by the University Information System (HIS) revealed that 34 per cent of German graduates now spent over a year looking for a job.

US to set up computer centres

from William Norris

WASHINGTON
Four supercomputer centres are to be set up in the United States over the next five years at a cost of more than \$200 million.

The supercomputers will be housed at Cornell University, The University of Illinois, the University of California at San Diego, and the Consortium for Scientific Computing - a nonprofit corporation of 12 big research institutions near Princeton, New Jersey. They were chosen after a nationwide competition among 22 institutions and will form the nucleus of a national academic network for use by scientists and engineers throughout the US.

Funding for the centres will come from the National Science Foundation, which is giving annual grants to each ranging from \$7 million to \$13 million. Supplementary funding is expected to come from states and industry under a cost-sharing programme.

The supercomputers, defined as the largest and fastest computers commercially available at any given time, are expected to be available for scientific research late this year or early 1986. They represent a radical new departure for the National Science Foundation, which has never before established a national facility purely for computer science.

Chinese date

The Chinese organizing committee for the United Nations' International Youth Year is sponsoring a gathering of youth from all over Asia and the Pacific region in Peking from May 10-24.

Student demo goes ahead

Security police cordons around the main campus of Warsaw University failed to prevent a demonstration to commemorate the purges in the university during 1968.

Flowers were laid at the site where the main clashes occurred between police and demonstrators. According to one student activist, the demonstration was deliberately kept low key - nevertheless over 150 participants, a considerable number were arrested.

The events of March 1968 have a considerable symbolic significance for Polish universities. Any attempts to mark the anniversary were prohibited until 1981, when during the Solidarity period it was possible not only to mark the date but to invite to the commemorations several of the purged scholars who were driven into exile.

This year, the March events acquired a special importance, as a result of the attempt by the state and Communist Party to destroy the academic autonomy won under Solidarity. A statement last month from underground Solidarity organizations with in Warsaw's eight university-level institutions condemned the proposed reform of the Higher Education Act as even more repressive than the "pro-regime" legislation introduced after 1968. The Main Council for Higher Education marked the anniversary by declaring unequivocally that it saw no need for the reform.



So often this shared copy of The Times Higher Education Supplement goes missing (just when you were half-way through the relevant article (or job advertisement)). For £30 you can have the THES delivered to your home for a year with the added bonus of a FREE copy of the Oxford Dictionary of Quotations* to equip you with memorable things to say and a FREE copy of Fowler's Modern English Usage* - the standard work for writers. Simply fill in the coupon and send it with your cheque made payable to Times Newspapers Limited to the address below.

Offer applies to new subscribers in the UK only and closes on June 30 1985. *paperback edition

The Times Higher Education Supplement

Please send me a year's subscription to The Times Higher Education Supplement plus my FREE Oxford Dictionary of Quotations and Fowler's Modern English Usage. I enclose my cheque for £30 made payable to Times Newspapers Limited.

Name: _____ (FME)

Address: _____

Signed: _____ Date: _____

Please send this coupon, together with your cheque, to Nigel Denton, The Times Higher Education Supplement, Priory House, St John's Lane, London EC1M 4BX.

overseas news

France pushes elitist policy

from David Dickson

PARIS The French government is stepping up pressure on its universities to publicly acknowledge that they do not form a single, homogenized system, but differ significantly in the quality of the education that they offer.

This is a central element in the strategy that is being adopted by the minister of national education, M Jean-Pierre Chevènement, to encourage a new tradition of what he calls "republican elitism" in the nation's schools and universities. According to M Chevènement, this is necessary to ensure that, while equality of educational opportunity remains the essential principle, equal emphasis is given to academic ability as the key to professional success and social achievement.

Two recent moves announced by the minister are planned to address this goal by stimulating universities into an increased effort to raise their standards of teaching and research. The first has been the creation of a new national committee charged with evaluating the performance of individual universities – and in some cases separate departments – and publishing an annual report of its findings.

The second has been the announcement of a new undergraduate degree, known as a *magistère*. This will be awarded to selected students, who, after achieving high marks in the examinations taken at the end of their

first two years of university study, successfully complete a further three years of a special high-powered course which has been approved by the ministry.

The government's intention is to use the new degree as a way of identifying departments which it considers to offer exceptionally high standards of teaching – and, by implication, of research – in subject areas considered important for the future of the nation.

Last week, the minister of state responsible for universities, M Roger-Gérard Schwartzberg, defended the new elitism being encouraged in universities as a way of meeting each of three objectives that have been placed before higher education: quality, equity and modernity.

Writing in the daily newspaper *Le Monde*, M Schwartzberg said that the quality in particular had become one of the great imperatives of the university system. "It is important that effort and rigour, success and competence, should be recognized," he said, since these characteristics were the key to success in global, scientific and technological competition, which depended heavily on the work of university teachers and research workers.

Both the national evaluation committee, which will be made up of 15 members appointed by the council of ministers on the recommendation of various existing university advisory

bodies, and the new examination, were, he said, intended to help achieve this goal.

In the latter case, for example, the government's intention was to exploit its specific characteristics of the highest performing universities in certain disciplines, such as management, computer sciences, social sciences, physics and biology.

The need to raise academic standards on postgraduate (or third cycle) training courses has also led the government to set up 11 new committees, each chaired by prominent members of the academic community, to take a close look at the courses in separate areas currently being offered by universities.

The government move has met with a hostile reaction from parts of the academic community. Jean-François Tournadre, for example, the general secretary of the national union for higher education, has attacked both the new degrees and the evaluation committee whose activities, he claimed, would inevitably lead to an increasing hierarchization among universities.

His union has also registered its opposition to the government's proposal that universities be given extra resources for the new high level courses leading to the *magistère* degree, claiming that this will "only increase still further unequal distribution of available resources."

University ordered to stop inquiry

from Geoff Maslen,

MELBOURNE

The governor of Victoria, Sir Brian Murray, has ordered Deakin University near Melbourne not to hold an inquiry into claims that one of its senior academics falsified research results.

Acting in the traditional role of university visitor, Sir Brian upheld a petition from Professor Michael Briggs which argued that the vice chancellor of Deakin, Professor Fred Jevons, had erred in his handling of the case.

For the past 14 months, Professor Briggs, a Deakin University biochemist, has been attempting to protect himself against suggestions that he falsified some of his research into oral contraceptives.

Under university regulations such charges, if proved, amount to gross misconduct. They are among the most serious claims that can be made against a scientist or academic and could have led to Professor Briggs's dismissal from the university. Professor Briggs said he was relieved by the outcome but concerned by the worldwide damage done to his reputation.

An English-born biochemist, Professor Briggs has been a controversial figure in world medical circles. A consultant with the World Health Organization, he is best known for his work on contraceptives and for developing a male contraceptive pill in the 1970s.

A confidential report from the governor to the university says Professor Jevons erred three times in his handling of the original complaint.

According to the report, Professor Briggs and his wife, Dr Maxine Briggs, published two research papers on oral contraceptives in 1979 and 1980 involving studies of women in Zambia and Melbourne.

In November 1983 the chairman of Deakin University's Ethics Committee, Dr R. J. Rossiter, wrote to Professor Briggs about this research. After receiving a reply from Professor Briggs, Dr Rossiter wrote to the vice chancellor and said he had received allegations about the research work of Professor Briggs which he had investigated and, as a result, had decided to make a formal complaint. Dr Rossiter suggested an inquiry be set up to look into the complaint.

Professor Jevons wrote to Professor Briggs in April 1984, informing him of the complaint and stating that this would necessitate a preliminary committee holding an inquiry under the university regulations.

Professor Briggs refused to attend a meeting with the committee and instead sought an injunction from the Victorian Court to stop the university holding the inquiry. In response, the university claimed the governor, as visitor, and exclusive jurisdiction over internal university matters. The Supreme Court agreed, so Professor Briggs then re-petitioned the governor.

Sir Brian appointed Mr Justice Starke of the Supreme Court to act as "assessor" to assist him and in December, the judge held a hearing in chambers.

Survey finds reforms 'a disaster'

from Donald Fields

HELSINKI

Judging by academic reaction, a government-imposed reform of degree courses in Finnish universities has been a barely qualified disaster.

This conclusion is based on a poll by the Foundation for Research in Higher Education and Science Policy of every other of the 1,544 professors and assistant professors employed in the country's 17 seats of higher learning. In an 84 per cent response, only 17 per cent believed the reform, which passed through a bureaucratic pipeline in four years before implementation in 1980, should be retained unmodified.

All of 25 per cent wanted a return to the old system, and 17 per cent urged "fundamental" changes in the present one. The balance – 41 per cent – was made up of those advocating slight adjustments.

Disenchantment was most marked in the humanities and pure sciences such as physics and chemistry; medical and technological professors were the least dissatisfied.

Dr Juha Vuorinen, director of the lobby-like foundation, said the findings indicated that the reform had fallen down in its two main objectives of making degrees more concentrated and shortening the time spent on studies, though it had to some extent succeeded in harmonizing standards in different subjects.

The survey is part of a larger project the foundation is undertaking to boost efficiency in the universities. It is being applied to a much larger accelerator, the Large Electron Positron Collider, or LEP. This will be no less than 27 kilometres round, buried in a tunnel beneath the fields of the French and Swiss farmers and the rock of the Jura.

But just when this new construction project is well under way, along come the British and threaten to abandon the enterprise. A review group appointed by the Advisory Board for the Research Councils and the Science and Engineering Research Council, chaired by the distinguished biologist Sir John Kendrew, will report in May on the future British role in high energy particle physics research, and our attitude to future participation in CERN.

The British physicists working in Geneva, and their colleagues devising experiments for LEP are trying not to think about the outcome. And when you are in Geneva, it is easy to see how British withdrawal from CERN almost literally unthinkable. It is not just the size of the establishment, but the urban and German director Professor Herwig Schopper admits it looks more like a factory than a laboratory. It is not just the excitement of the exquisitely fine engineering needed to build modern accelerators, or the everyday internationalism of the place – you can find these in other ventures like the European fusion power project, JET, in Oxfordshire. The force behind loyalty to CERN stems from the creation and support of a community of 6,000 people devoted to a single scientific quest. If you live among such people, it is obvious that finding the next particle is supremely important. To the expatriate Brits in Geneva, the Kendrew

Jon Turney visits Geneva before the Kendrew report on British participation in nuclear research

A cause for conCERN

Ask a particle physicist where the action is today and the answer has to be Geneva. You can scribble theories to account for the behaviour of the basic building blocks of matter anywhere, but you can only test them in a few places because of the massive apparatus needed. Just now, the best place is the European Centre for Nuclear Research, spanning the Franco-Swiss border.

CERN has developed since its foundation in the early 1950s into perhaps the best assembly of talent and expertise in designing the ever-more powerful particle accelerators needed to keep up with the theorists' predictions, and getting them built on time and to cost.

That technological and engineering brilliance enabled a team led by last year's Nobel prizewinner, Carlo Rubbia to modify the existing large accelerator at CERN, the seven-kilometre round Super Proton Synchrotron, to reach energies high enough to flush out the elusive W and Z particles in 1983. They did it by smashing two particles together at high speed instead of firing a single stream at a fixed target.

That achievement put CERN in the forefront of collider technology, as well as in the lead in keeping up with the theorists. The history of the big accelerators is in part a story of the theorists, the accelerator designers and the engineers taking turns to egg each other on to higher energies.

The collider expertise at CERN is now being applied to a much larger accelerator, the Large Electron Positron Collider, or LEP. This will be no less than 27 kilometres round, buried in a tunnel beneath the fields of the French and Swiss farmers and the rock of the Jura.

But just when this new construction project is well under way, along come the British and threaten to abandon the enterprise. A review group appointed by the Advisory Board for the Research Councils and the Science and Engineering Research Council, chaired by the distinguished biologist Sir John Kendrew, will report in May on the future British role in high energy particle physics research, and our attitude to future participation in CERN.

The British physicists working in Geneva, and their colleagues devising experiments for LEP are trying not to think about the outcome. And when you are in Geneva, it is easy to see how British withdrawal from CERN almost literally unthinkable. It is not just the size of the establishment, but the urban and German director Professor Herwig Schopper admits it looks more like a factory than a laboratory. It is not just the excitement of the exquisitely fine engineering needed to build modern accelerators, or the everyday internationalism of the place – you can find these in other ventures like the European fusion power project, JET, in Oxfordshire. The force behind loyalty to CERN stems from the creation and support of a community of 6,000 people devoted to a single scientific quest. If you live among such people, it is obvious that finding the next particle is supremely important. To the expatriate Brits in Geneva, the Kendrew

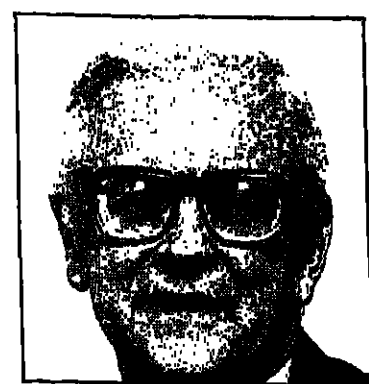
But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-



Professor Schopper: more factory than laboratory



Sir John Kendrew: report in May

inquiry seems based on a failure to grasp the true virtues of CERN.

But it looks different at home, where researchers in other fields wait in ever growing lines for grants, or face losing their jobs while the pounds continue to flow across the Channel. The top managers at CERN naturally see the political problem, and deploy a host of arguments unrelated to the science. Particle physics stretches a country's technological, they say, just look at the computer control systems needed to keep particles on target over such long distances, and read the tracks recorded when they collide.

Accelerator design has driven spin-offs in radiotherapy, superconducting magnets and scientific instrumentation, as well as providing researchers in other fields with new probes for processes nearer the everyday level than the world of quarks and gluons explored at CERN.

And Professor Schopper and his colleagues point to the unique assets the laboratory offers for training young scientists and engineers, who may spend two or three years working on state of the art development, with international collaborators under tight time and cash limits. Just what British industry needs. And while it is true our home companies have a relatively poor record in winning lucrative contracts from CERN, there is scope for increasing the direct economic return from the laboratory's capital programme.

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-

inquiry seems based on a failure to grasp the true virtues of CERN.

But it looks different at home, where researchers in other fields wait in ever growing lines for grants, or face losing their jobs while the pounds continue to flow across the Channel. The top managers at CERN naturally see the political problem, and deploy a host of arguments unrelated to the science. Particle physics stretches a country's technological, they say, just look at the computer control systems needed to keep particles on target over such long distances, and read the tracks recorded when they collide.

Accelerator design has driven spin-offs in radiotherapy, superconducting magnets and scientific instrumentation, as well as providing researchers in other fields with new probes for processes nearer the everyday level than the world of quarks and gluons explored at CERN.

And Professor Schopper and his colleagues point to the unique assets the laboratory offers for training young scientists and engineers, who may spend two or three years working on state of the art development, with international collaborators under tight time and cash limits. Just what British industry needs. And while it is true our home companies have a relatively poor record in winning lucrative contracts from CERN, there is scope for increasing the direct economic return from the laboratory's capital programme.

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

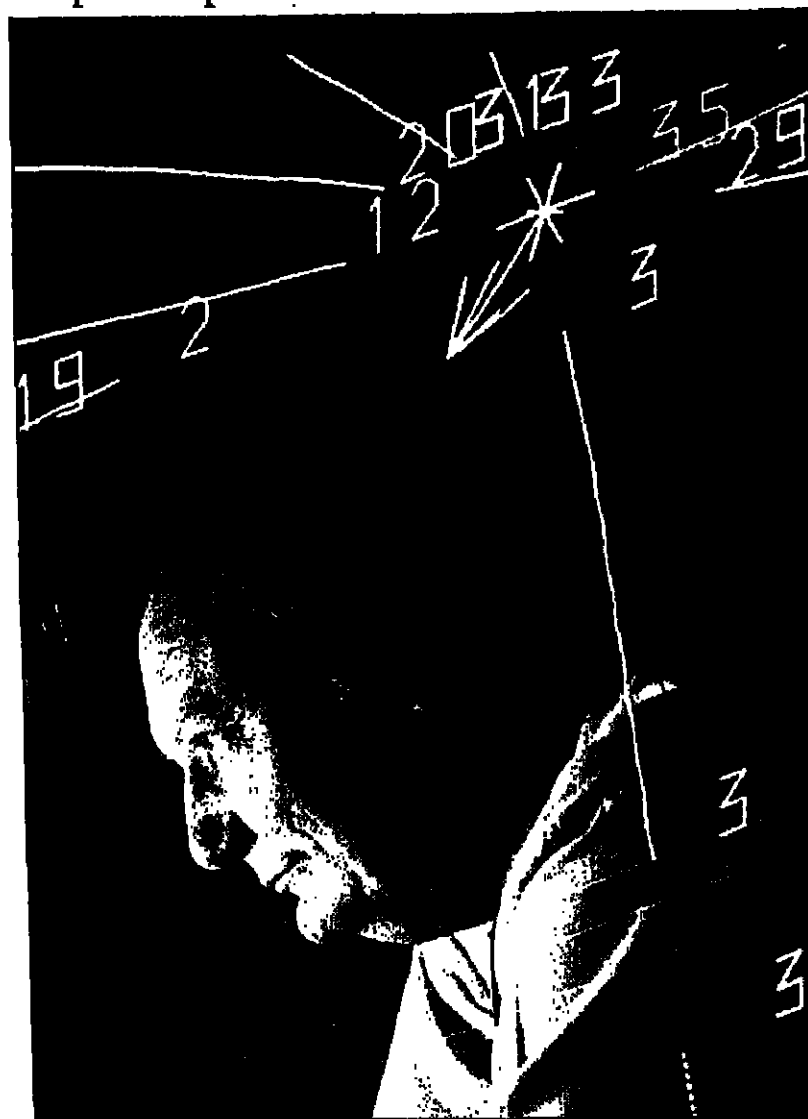
But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.

And the hordes of physicists now working on instruments for LEP, over 300 on one detector alone, did not sign up for a nine-year slog to enhance international understanding. They want to do the next experiment, and this is the only way.

But for all that, the deliberations of the Kendrew group will turn on more prosaic matters. Of course they will stress this is splendid science. But that doesn't mean we cannot cut costs. At least, under the current British admin-

But as these arguments are painstakingly repeated, one senses the CERN managers' hearts are not really in them. A man like Carlo Rubbia didn't fight to convince sceptical colleagues his rejigging of the Super Proton Synchrotron would work because he hoped it would help train a few project managers for European industry. He did it because he wanted to prove he could make the machine operate, and move into the energy region where the W and Z particles awaited discovery.



Nobel prizewinner Carlo Rubbia with the computer display of a Z particle event superimposed over his head

have too look closely at the consequences of persuading everyone to cut the overall budget in the early 1990s.

This could well be on the cards, as the CERN council is generally unwilling to override the wishes of a major contributor. If the laboratory wanted to maintain its budget in the face of a cut from the big four, Britain, Germany, France and Italy, it would still have the option of raising minor national payments, and increasing the money expected from scientists in non-member states taking part in CERN experiments.

If that didn't fill the coffers, it would mean, reaching for the LEP power beast. Complaints on that score are unlikely to cut much ice with the SERC, which is faced with large facilities like the Spallation Neutron Source at Rutherford Laboratory which were delayed to spread out capital spending and still problems with running costs.

Further ahead, towards the end of the century, there are schemes afoot to build a second ring in the LEP tunnel, for accelerating protons. But that would almost certainly mean new international negotiations, which will depend heavily on the attitude of the Americans.

US physicists are touting a plan for a new three billion dollar accelerator,

the super-conducting super collider, to be built somewhere in the desert – hence its nickname, the Deserttron. If this is approved, it makes the new proton ring for CERN look less useful. In the meantime, as the table shows, accelerators already being built in the US at Fermilab and Stanford may rub the gloss off the CERN colliders. Suddenly the need to build quickly looks less like an impulse borne of scientific drives, and more like good old-fashioned competition. As Robert Klapisch, one of the leading LEP physicists put it, "if you come second you lose your whole investment".

Perhaps the British inquiry will help put wider international cooperation more firmly on the agenda. There is already much talk of developing complementary rather than competing facilities, through such groups as the International Committee on Future Accelerators and a working group set up under the auspices of the seven national annual economic summit meetings. But the spirit of current developments still looks more like a race than a joint expedition. If Kendrew could find a way of uniting Europe, the US, and the developing interest in Russia and Japan, the British inquiry might help save money in the global science budget, not just for our own.

'Super-race' to be reviewed

The Singapore government has announced that it is going to review some of its controversial education policies, including a scheme which involves selection procedures for top schools which gives preference to children with mothers who are university graduates.

Education minister Tony Tan, speaking at a meeting of school principals, said the government had decided to review its controversial policies because of increasing public resentment towards the scheme.

The scheme is part of a broader programme, introduced last June, being conducted by the government's Social Development Unit, which also includes giving financial incentives to university graduates to marry and have children, the assumption being that they will tend to produce more able and intelligent children. A special match-making unit has been set up to help single graduates find suitable partners. But the idea has attracted very few graduates.

Another scheme involving a \$4,300 incentive to encourage married couples with low educational performance to be sterilized after their second or third child has also failed poorly. Only 57 couples have come forward in the 10 months that the scheme has been running.

The government's opposition, the Roman Catholic Church and many other pressure groups within the country have bitterly opposed the whole "super-race" programme since its conception, and it has received worldwide criticism since its introduction in June 1984.



Bl Zett University, on Israel's West Bank, is largely shut for the eighth time in five years following a raid by the Israeli army earlier this month. A two-month closure of the New Campus, which houses the university administration, computing department, engineering faculty, science blocks, library, canteen and social facilities, was ordered a fortnight ago. The action renders three quarters of the university inoperative.

The other followed a midnight raid by the Israeli army on a book exhibition. Illegal literature, including manuals on the preparation of home-made bombs, was said to have been seized and 55 students detained. All but nine were released shortly afterwards.

Time called on campus

William Norris on the damp blanket of sobriety that has covered the US universities

Things are not what they used to be. Spring is coming, and time was when on campuses across America the most widely-sold had at this time of year was a popular brand of beer. It was a time of wet T-shirt competitions and rock bands, funny hats and 20-foot inflatable bottles. All by courtesy of the grateful brewers, who knew a booming market for their product when they saw it.

No more.

Almost unnoticed, a damp blanket of sobriety has fallen across the universities of the United States. According to a spokesman for BACCHUS – (Booze, Alcohol, Consciousness Concerning the Health of University Students) – "We're moving away from thinking of drunkenness as good fun."

The real reason is a good deal more prosaic. Under pressure from Congress, which has threatened to remove federal road funds unless they comply, an increasing number of states have raised the minimum legal drinking age to 21. Universities therefore find that 60 per cent or more of their students are now underage as far as beer is

concerned, and the breweries are having to rethink their tactics.

They are still on the campus and still (they say) peddling a lot of beer. But the beer-bashes and the sponsored parties are giving way to such worthy activities as sporting events and charity fund-raising. The aim now is to promote brand consciousness. In the hope that the students will retain loyalty when they finally make it into the legally drink-sodden world outside.

Some brewers are even thinking of giving up their student representatives – a long standing tradition in which students have served as sales personnel and liaison between the distributors and fraternities and other campus groups that buy beer in large quantities.

The changes on campus have been copacetic. The university of Virginia no longer holds its famous Eastern Weekend – a spring weekend during which a student died in an alcohol-related traffic accident a few years ago. At Mary Ann, before the state raised the drinking age, there were 122 events at College Park that had liquor

licences. Last autumn there were none, and alcohol was officially banned from fraternity pledge ceremonies.

A pub at Colgate University, in Hamilton, New York, has been turned into a soda fountain. Another at Rutgers University in New Jersey, has been closed. A bar at Connecticut College, was restructured so that students must line up at the bar and have their identification card checked before they are served. And at most colleges a student who wants to give an open party must register with school officials. He assumes liability for the event and agrees to serve a variety of non-alcoholic beverages.

There are fewer large parties. "On a Thursday or Friday morning you used to pick up a college paper and circle dozens of parties you could go to that weekend," said a senior at Cornell University. "Now there are only a few."

As a result, some students who are inclined to drink are increasingly doing so in dormitory rooms or in private apartments. Students also say that membership of fraternities is growing partly

because students know they can stay at home there, be with friends, and drink. Fraternities are becoming the appendages of the college party scene. This year alone has seen the formation of ten new fraternities and sororities on the campus of the State University of New York.

Overall, however, there seems little student protest against the new sobriety. Administrators say they think a revolution in campus behaviour is possible because the new generation of students is more concerned about their health and careers than any previous group, and they understand how alcohol abuse may hamper their academic and extracurricular efforts. They get a good job after graduation. But like administrators have a vested interest in the 80 per cent of vandalism on campus has been broken up by drinks.

No more. The American university of 1985 is quieter, more sober, more respectable, more conventional place. Duller, too.

The fact of the matter is a political as well as scientific problem

In the end, particle physics must be its own justification. CERN undoubtedly offers a modest direct economic return, some longer-term industrial spin-offs, training benefits, and the intangible value of an emblem of international collaboration. But these are not what it is for. The laboratory exists to support scientists who believe that probing the fundamental laws of nature is good in itself. It represents research as high culture.

Yet there are special difficulties in presenting the work at CERN as the nearest we find today to science for its own sake. Put crudely, will the European taxpayer go on paying hundreds of millions of pounds a year for research only a few thousand physicists really understand? In a way, the nature of the latest physical theories themselves becomes as much a political as a scientific problem.

The problems divide into two – the theories and the experiments, support, and the direction they may take in the future. In some ways, the state of the art looks promising. The "standard model" has brought order to the zoo of sub-atomic particles uncovered in the 1950s and 1960s. And the validation of the

model provided by discovery of the W and Z particles at CERN in 1983 appears to confirm unification of two of the four fundamental physical forces – the electromagnetic force and the weak nuclear force.

So far, so pleasing. It is easy to appreciate the neat tables of particles now drawn up



Our Class of 83 students, whose progress through higher education we have been monitoring, are now well into their second year. This week we give a progress report on five of them.

Outgoing outlook

Second year is proving more enjoyable, and a marked contrast to first year, for Kirsten Taylor-Duncan, taking a four-year BA in landscape architecture at Edinburgh College of Art.

She felt considerably under stress in the first year, since she had already given up a BSc course at Napier College after a month. She was determined not to give up again, and virtually never took an evening off work, going home almost every weekend to Lurber, a 40 minute train journey away.

This year, she has realized that everyone is finding the course tough, and she is beginning to relax more. "The work's getting harder all the time, and that's worrying. But at least we can all worry together."

However, she is concerned that she has still not developed a balanced working and social life.

"In first year I was always working - well, I felt I was because I didn't go out, but maybe I wasn't working as much as I thought. This year I've been going out a lot, and the danger is that the more you go out, the more you want to go out."

Kirsten herself lives in a flat with two final-year language students and a final-year accountancy student. "I couldn't stand a hall of residences. It's like being at home, you can only relax when you're at home."

Next year, she has bought an architect's drawing table which she has installed in her bedroom. "It's good



when you are working late at night, rather than going to the studio in college. I work there sometimes, but if it's crowded, there are too many distractions with radios going and people talking.

The drawing table cost £115, and Kirsten admits to having acquired an overdraft. The students have a £75 equipment grant, but she had already spent this on a camera which she uses constantly in her course.

She intends to stay in her Edinburgh flat during the summer vacation rather than going home, and is already applying for jobs in shops, hospitals and landscape offices.

She is also now concentrating on a major project: there is one of these each term.

The college is understood to place great importance on the students' handling of this term's project. "I couldn't stand a hall of residences. It's like being at home, you can only relax when you're at home."

Closure puts pressure on teacher training transfer

1985 may well be the year that Rosalind Thomson, studying for an honours BEd in mentally handicapped teaching at Manchester Polytechnic, remembers most vividly as the period when she became personally embroiled in the impact of cuts and changes on institutional teacher training policy.

For Rosalind's course is being closed down. She herself and the 1983/1984 intakes are being allowed to continue until they finish but she says there is already pressure to transfer on to another course, which is compounded by growing uncertainty about future job prospects.

Her course, like a number of others in several institutions, is being closed as a result of recommendations made by the Advisory Committee for the Supply and Education of Teachers which proposed that training courses in special needs and mentally handicapped teaching should be offered purely at in-service level. Ironically the Secretary of State has yet to pronounce on these recommendations.

"I don't really disagree with the idea that it is better to gain experience in a more general school first and

Getting back on course

For Sarah Dudley, 27, disillusion with her original course has not resulted in a lasting disaffection with higher education.

After leaving school at 16 and working for 10 years, she was well aware of the difficulties of returning to full-time education - "I know after such a long gap it will be very difficult to concentrate and write essays," she said, back in October 1983 when she was about to start a Russian degree at the School of Eastern European and Slavonic Studies at London University.

Perhaps it was the fact that she was doing a language course, which involves a tremendous amount of rote-learning when starting from scratch, but she soon found she felt she was being treated like a child and that people were breathing down her neck all the time.

"We had to do a lot of vocabulary - about 150 words a week. I didn't mind the work, but if you missed one class, people would ask where you were. All the other students were much younger than me and although they moaned about it as well, they were there to get a degree. I wanted to enjoy what I was studying as well."

She gave up the Russian course during the second term of her first year and for two months felt "incredibly depressed". But she was determined to change course and set about applying to the other London colleges. The response was not encouraging.

Sarah found that not having a maths O level was an insurmountable obstacle when it came to her new choice, psychology, and she did not get an offer of an interview, let alone a place.

Undeterred, she decided to change tack and go part-time. She was offered a place at Goldsmiths to read psychology, and is now in the middle of the first year of the four-year part-time course. Sarah is enjoying the



course a lot, even statistics - an integral part of a psychology degree - where she admits she had worries because of the lack of maths. "But it's straightforward and logical and I find that by working through the books I can keep up."

Doing a part-time degree has meant that Sarah may have to work full-time as a temp - and also that she may pay her own fees. But she does not mind. "I find it happier than when I was on a grant, not because of the money, but because I feel that I'm paying for all that it is up to me to do well."

Sarah grimaces at the idea of a career as a child psychologist and says she does not really know what she wants to do at the end of the course. "Perhaps I'll go to Russia," she says with a grin.

Faced with economic realities

Paul Smolinski is learning economics the hard way in his second year at York University. The academic side is going well but the practical (learning to live on a student grant) is proving much more difficult than expected.

He has moved from a self-catering hall of residence into a university-owned house in the city. Five students on a variety of courses share the house, which is in an area of York with a large student population. It is more expensive than hall but worth it, says Paul. "I'll go back into college for the final year but I wouldn't move out for a year," he explains.

"A house is much better because although the campus is very active during the week, it is really dead at the weekend. It is not exactly quiet but I'm

enjoying it at the moment."

Communal living is not an entirely new experience, since accommodation in hall was arranged in small units with shared cooking facilities. Cleaning has come as more of a shock and has been organized on a rota to ensure that it gets done.

Since the house is a 20-minute journey from the university, Paul decided to spend some of the money he earned over the summer vacation on a car. And there lies the root of his difficulties with the grant. The car was "not expensive, although tax and MOT certificate made a dent in his earnings, and Paul's father has worked on it to keep down garage bills. But he still cannot afford to run it."

"I didn't think it would be quite as



expensive as it has turned out," says Paul. "It's going to be a big again at Easter. Money has been tight this term and I just could not manage on the grant."

The economic course has become a lot more demanding, although it is more specialized, is more than Paul had hoped to find in degree work. There are no second-year examinations but there is some continuous assessment, particularly in mathematics and the two options taken in addition to the core economics subjects. He has also started work on a project, which will count for one eighth of his degree, on the economic determination of the banks' profitability.

He has kept in close touch with a number of friends from his Newcastle home once a term now. Some sing, all either have jobs or are higher education, but none has Paul any cause to regret going to York.

The student who made legal history

As the first pupil from her secondary modern school in Northern Ireland to go to Oxford University, Kate Leonard has led the way for others to follow.

Not that she would bang a drum herself about it, but when she was offered the place at Balliol College to read law it did cause a stir in her area, which is Catholic, and got a story in the Belfast press.

She was offered a place at a grammar school but took the secondary modern place in Andersonstown because it did not involve travel across town and through non-Catholic areas. Its potential hazards. The school uniform would have been more expensive and she would have had to buy her own books.

In the first year she at Oxford she did target schools work organized by the university and visited several comprehensive schools at home to encourage others to try for Oxbridge places.

"I also visited one London school and it was a bit embarrassing really because I talked to a group of sixth formers and it turned out that they were not doing A levels."

This year the pressure of work and



several bouts of flu have curtailed her outside activities. The study has been a particular uphill struggle since she has found studying law dry and rather unexciting.

"There is a lot that there hasn't been



Inside Stoke-on-Trent City General Hospital kitchen in the 1920s

History in the making

On Sunday Channel 4 screens the last part of *City General*, a six-part series tracing the history of a hospital in Stoke on Trent from its workhouse origins, through the setting up of the National Health Service to the present day. The series was made by the Television History Workshop, a group of programme makers and historians concerned to explore the ways television can be used in the collection and presentation of oral history.

In the pamphlet that accompanies the series, the TVHW offers a kind of statement of creed, which begins: "You don't have to be famous to have a history of your own."

In various projects over the last three years (including an award-winning series about Cowley called *Winning Cars*) the TVHW has insisted on the value of the testimony of ordinary people both as an input into "history" and as a subject for television, challenging the role of the expert which has tended to predominate in both.

The most characteristic feature of the TVHW's programmes is that a wide range of interview material is presented in a very straightforward way, with minimal editing and without the recurrent presence of an expert to contextualize it. This is "history from below", and in the case of the health service, the perspective it has given has been an interesting one.

As one of the three co-producers, Sharon Goulds, explains administrative changes in the NHS look different when viewed from the sharp end. "We interviewed a maintenance fitter, for example, and he told us that the 1969 Salmon report - which was mostly about nursing structures - had radically affected his job too, because it put in a new layer of management for him to consult before he could do anything."

The TVHW was born in 1981 when programme maker Greg Lanning set up a shop as a video studio in Rallion Road, Brixton, and invited people to come in and record their version of "the riots". The resulting tapes were never intended for broadcast but as a historical record - were an experiment in making "accessible" television at a time when Channel 4 was formulating its policies. Greg Lanning's idea seemed to fit in so well with Channel 4's plans that, as Marilyn Wheatcroft says, "Without even seeing the tapes they thought they were wonderful."

One of the main concerns of the TVHW was therefore to make accountable television. Sharon Goulds and Marilyn Wheatcroft (formerly from Thames and the BBC respectively) are careful to acknowledge the level of research that goes into all television documentary, but they do see the TVHW's methods as very different.

For *City General*, for example, a team of three researchers worked in Stoke on Trent from the autumn of 1983 to early 1984. A shop was opened as a centre for the project and an extensive poster, press and radio campaign brought in around 700 people. Everyone's testimony was logged and around 60 people were invited to be interviewed. And, most important, the involvement of the interviewees did not end there. They were invited to take rough cuts of the programmes, to be part of the process of presenting their evidence on screen. "We have had to give people more involvement," says Sharon Goulds. "We haven't just rushed in, taken what we want, and rushed out again."

This doesn't mean, of course, that the participants have ended up cheerfully endorsing the programme. The point is that they have been part in the editorial process and the programme is devoted to

their assessment of what the series has achieved. By being so "open" the project nicely exposes the ethical minefield at the heart of documentary television (and of journalism generally) concerning the impossibility of being "objective" either in the collection or presentation of evidence, and the necessity to make compromises in the cause of interesting the public. The project was aimed not only at compiling an historical resource, but also at making programmes that people must be persuaded to watch. So on a very minor matter, it might be more honest to edit out people's hesitations (the ums and ers) but on the other hand, as Marilyn Wheatcroft says, "if the audience gets impatient, if they're thinking, 'Oh come on, get it out' then they're going to switch off."

The larger issue the project highlights is the selection of material to give a programme a "point of view". Some people involved in the *City General* project have criticized the finished programmes for not saying enough about medical history, for concentrating too much on the ancillary workers.

"Point of view" is a subject which Sharon Goulds and Marilyn Wheatcroft have given a lot of thought. "We never say, 'This is an authorized version' in the way most television unwittingly does," says Marilyn Wheatcroft. "When they say they are presenting all sides and going down the middle the result is to imply that going down the middle is the consensus view that the programme endorses. We don't do that. In fact, we often put contradictions against each other deliberately. But of course we do have a 'point of view'. Frankly, if you're doing 'history from the bottom' there's no question that you're aligning yourself with 'the bottom'."

"You cannot ever totally exclude your own point of view," Sharon Goulds adds. "And not only your political point of view but also your emotional reaction to something. We keep in stories we personally find interesting - for example, and I wouldn't dream of keeping in any sexist remarks. But over all, the point of view is clear: that people should have a say in their lives which is why we make the programmes."

The fact that a political standpoint was fundamental to the project has caused a few problems. Interviewees have objected that "history" and "politics" ought to be kept separate. "When we say, 'Yesterday was history' they think we're cheating," says Sharon Goulds. "We've had to explain that what we see as 'history' isn't textbook history." As Marilyn Wheatcroft explains: "People can look back at 1948 and see the setting up of the NHS as

history even though we all know there were incredible political pressures involved in that. But if you ask about recent industrial action, that's regarded as 'politics'."

What are the advantages of doing oral history this way? One might be that the presence of a high-profile television research team must draw more interest from a community than a more sober, clipboard-and-tape-recorder project. Also, broadcasting this material on television as "history" must make more people aware of the wider oral history movement. Indeed, the TVHW is very keen to contribute to the growth of the movement, and in the four pamphlets it has produced its purpose is not to blow its own trumpet but to give practical information about how oral history is done, encouraging people to do their own projects. In fact, the statement I quoted earlier - "You don't need to be famous to have a history of your own" - is completed with "and you don't need to be a professional historian to record it."

The other great advantage of a television programme as an end result is that it makes a useful educational resource. So far the video cassettes of the TVHW's programmes (the Brixton tapes, *Making Cars*, and single studies of a mining community, women campaigners and school rebellions) have proved popular with colleges and libraries. "We were conscious of the need to ensure that the programmes on cassette are only 30 minutes," says Marilyn Wheatcroft, "because it's the experience of most people in adult education or trade union education that people will only keep quiet and watch the programme for that long before they want to get going on it."

"This is an expensive way of doing oral history," says Sharon Goulds. "So unless it is broadcast there's no real reason for doing it in this form." But while it is broadcast it may well help to undermine some of the prejudices that television so often helps to create. "One of the things people have said about both *Making Cars* and *City General* is that they are surprised that people in those industries know so much about what's going on. They are surprised by the level of comment. That's a very patronizing view in my opinion." To enlighten such prejudices is a very good reason for making this sort of television.

Lynne Truss

For more details about hiring or purchasing video cassettes, write to Post and Future Trading, 42 Queen Square, London WC1N 3AJ. The Television History Workshop is based at the same address.



Nurses at the hospital today

Unoriginal sins...

A Greek student at a prestigious British university was reading an article in a well-known social science journal. He was surprised, even horrified to realize that the piece, written by one of his lecturers, was remarkably similar to something he himself had written.

The student complained to the journal, which accepted the resemblance. The journal editor did nothing in print but "put the word about" in publishing circles and in the small academic world of the particular discipline, as to what had happened.

There was thus no public reparation for the student or ignominy or worse for the lecturer, but the career of the latter may have been stymied.

In another case one chapter of a well-received book published earlier this year leans extensively on the unpublished thesis of a polytechnic lecturer. A footnote in the book makes an acknowledgement but gives no idea of the extent of the "borrowing".

And in May last year the *Quarterly Journal of Economics*, an American journal, in a notice to its readers, said that an article published by them in 1981, purporting to be the original work of a named professor, was in fact a Xeroxed copy of an article written by another professor.

The journal's apology, and its description of how professional document examiners had proved the deception, showing how the by-line and the name of the university has been added to the first work, was longer than the article.

At Keele University, in the 1970s, a lecturer in the American studies department resigned after allegations of plagiarism. A reader at Bristol University resigned in 1981 after an internal inquiry, when some of his junior colleagues found some irreproducible features of a published paper in physiological sciences. He admitted that the data were false.

Call it plagiarism, breach of copyright, research, academic collaboration or at the extreme end of the spectrum, falsification of data, it is a rare and unexplored area of academic life. Ask an academic how rare in plagiarism and there are two answers: one is hardly ever a person, or it is an 'inbuilt' part of the system.

Both answers are "correct". Research is about building on and from other people's ideas, but stealing all of their words is taking the appreciation too far.

One of the most famous cases of

plagiarism occurred at the end of the 1970s in the United States when Elias Asabati, an Iraqi scientist, plagiarised about 60 papers.

In 1980, commenting on the *British Medical Journal* retracted the difficulty of verifying the credentials of people submitting articles for publication.

There were 8,000 medical journals in the world, it said, which received thousands of papers a year. The *BMJ* received more than 5,000.

And of course, checking unpublished work, such as student dissertations lodged in university libraries (and read by how many?) really stretches credibility.

Which leads one to the other aspect of this question, the relationship between the lecturer and the student or the research assistant.

It is acceptable practice for heads of research projects to put their name on the research paper even if they have not contributed. They may have won the grant, steered the researcher and will give the paper credibility.

Science, unlike the arts, is usually a collaborative venture and many papers will have three or four names on. An academic supervising a student's work may claim that the interpretation is his or hers, though the raw data is the work of the student. What price, then, the rules of originality for research these?

In some university departments the supervisor is also the internal examiner. A PhD may largely be the product of the interaction between a supervisor and student, so the supervisors end up examining themselves.

The vulnerability of the research worker is almost part of the structure of the relationship. The researcher is unknown, dependent for degree and progress on the supervisor, a tenured member of staff who knows (usually) where the investigation should go.

Some of the issues raised here are of course being examined by the Reynolds group on academic standards set up by the Committee of Vice Chancellors and Principals.

The question of plagiarism is also topical because two separate allegations are currently being investigated at Manchester University and at the University of Manchester Institute of Science and Technology.

At least as interesting as plagiarism or academic collaboration is how an institution reacts publicly and privately to an allegation of such a charge. Manchester is being watched.

Ngao Crequer

Paying the pass masters

Plagiarism has a long, if not exactly distinguished history in American academic life. Traditionally, college fraternities have kept "libraries" of fraudulent examination papers, enabling students whose wealth exceeded their desire to study to get their degrees with minimum effort.

This practice is now believed to be on the wane, kept in check by increased vigilance, but a new and worrying factor has now appeared on the scene. Commercial firms are now advertising widely, especially in student newspapers, offering to prepare term papers. The student merely writes to the organization, telling them his subject and how many pages he needs, and the work is then farmed out to freelance graduates. The student pays by the page.

Most of the professional plagiarists operate around the major academic centres of New York, Harvard and Princeton. "It's a very serious problem," said Professor Joseph P. Zimmerman of New York State University, "but we have no way of knowing how widespread it is. There are no statistics on a thing like this."

Occasionally the plagiarists overstep the mark. One of Professor Zimmerman's own PhD students submitted a dissertation which seemed to have a familiar ring. On investigation, the professor discovered that he was being asked to accept as original research something that he had written himself. "I don't think it was intentional," Professor

Zimmerman said, "so I reminded him gently that plagiarism was not approved of. It turned out that he did not even know what the word meant."

The problem is particularly acute in such fields as economics, where students are dealing with theories rather than facts and there are a large number of publications with very small circulations. One associate professor at Princeton was recently caught out when he submitted a paper to the prestigious *Journal of Post-Keynesian Economics*. The editor thought it had promise, but sent it out for a second opinion before reaching a decision. By chance, the professor to whom he sent it was the original author of the article - who had never managed to get it published himself.

"Ironically," said the Journal's editor, Professor Paul Davidson of Rutgers University, "we would have published it. This guy may not have done the work, but he was better at selling it."

It has fallen to California to come up with the latest innovation in the field. The Los Angeles district attorney's office is currently investigating charges that complete falsified transcripts have been inserted into the computer system of the University of Southern California, leading to the granting of phoney degrees.

William Norris

In September The Times Higher Education Supplement

published a 4-page analysis of the joint statement from the University Grants Committee and the National Advisory Body regarding the basis for considering the present and future role of higher education in our society.

Copies are available at 30p each.

Please make your cheques/postal orders payable to Times Newspapers Limited and send to:

Lesley Griffiths
The Times Higher Education Supplement
Priory House,
St John's Lane,
London EC1M 4BX

* This includes postage within the UK but not overseas/Red Star or hand delivery.

(001)

Where in the world do we go from here?

J. D. Fage on the future of area studies, now the subject of a UGC inquiry

Sir James Craig is now engaged on the inquiry into Oriental and African Studies which was commissioned last October by the University Grants Committee. It is apparent that the primary issue on which he has been asked to advise is, the extent of the provision for the teaching of Asian and African languages that is needed to meet Britain's commercial, industrial and diplomatic needs.

It follows that this is a narrower inquiry than that undertaken in 1947 by the Interdepartmental Commission on Oriental, Slavonic, East European and African Studies presided over by the Earl of Scarbrough, or those made in 1961 and 1965 by two complementary subcommittees of the University Grants Committee, the one on Oriental, Slavonic, East European and African Studies chaired by Sir William Hayter, and the other on Latin American Studies chaired by the late Professor J. H. Parry.

Since the first call for the new inquiry was made in 1981 by the vice-chancellor of the University of London, with support from the vice-chancellors of Oxford and Cambridge, and since at the same time the present chairman of the UGC, Sir Peter Swinnerton-Dyer, was chairing the University of London's Committee on Academic Organization, it may indeed be speculated whether its genesis may not lie in a particular awareness of the situation in that university's School of Oriental and African Studies.

The narrowness certainly has nothing to do with the fact that the new inquiry is entrusted to a single individual rather than to a committee. All this means is that, in the Britain of the 1980s, the powers-that-be look for quick answers and would rather not spend much money on getting them.

Sir James Craig in fact brings much relevant experience to his task. He has a first class honours degree in Arabic and Persian from Oxford; he was for some seven years a lecturer in Arabic at the University of Durham; he has the best part of 20 years' diplomatic experience, mainly in the Middle East, leading to ambassadorships in Syria and Saudi Arabia; and he has been a visiting fellow at St Antony's College, Oxford, a college which has unusual expertise in relation to the non-western world, including the Soviet Union, the Middle East, India, China and Japan, Latin America and sub-Saharan Africa.

Sir James's inquiry is narrower, because his brief requires him to concentrate on the provision for language teaching, and because of its circumscribed geographical scope. Whatever may be the outcome of his inquiry, it does not seem that its initiators see the need for a full-scale re-examination of the provision made in this country—at least in its universities—for what Sir James's time has been known as Area Studies. By this is meant systematic and interrelated studies not only of the languages and literatures, but also of the histories and geographies, societies, politics and economies of the lands and the peoples of the second and third worlds of eastern Europe, Asia, Africa and Latin America.

If the need for these Area Studies was first significantly appreciated as a result of the Second World War, which Scarbrough saw had extended the range of contacts between Britain and the world beyond western Europe, the subsequent development of the world economy and its technologies and systems of communication has made it abundantly clear that what happens in Poland and the Lebanon, Korea and Vietnam, Ethiopia and Namibia, the Argentine and Nicaragua must be of concern to us in our little islands, not only morally, but sometimes also in very material ways.

It is arguable, indeed, that the days when Britain could simply take the outside world for granted disappeared for ever when she lost the Empire which once controlled so large a part of it, and when her exporters of goods and of capital ceased to play such a major role in the economies of so many other lands. Now that Britain is no longer a world power of the first rank, and now that the health of her commerce and industry—and even other peoples and their governments are doing, a greater and not a lesser effort needs to be made to study these peoples, their societies, their institutions, their ideas and activities.

Why then should not the concept of Area Studies extend to the study of anglophone North America, to Australasia and to western Europe? It is a good question, especially in view of the considerable economic and political strengths to be found in such areas. But many people would argue that their societies have traditions and behaviour patterns much more akin to our own than those of most areas. It can also be argued that what is taught in our schools, colleges and universities is more or less as relevant to the understanding of society in these more familiar foreign lands as it is to that of our own society.

Although it may be, false comfort that such views are more apt in respect of France, Germany and the United States than they are, say, for Belgium, Greece or bilingual Canada, most



people would agree that much greater effort is needed to begin to understand societies and their springs of action in what is convenient to call the "non-western" world. The questions then arise as to how much of such understanding we actually need in this country, and whether enough is being done in our educational system to help provide it. It is of course true that the core of the greater effort that is required for a better understanding of non-western societies does very often begin with the difficulty of acquiring their languages. The acquisition of languages such as Arabic, Chinese or Yoruba—what the linguists sometimes call the "hard languages"—involves the learning of quite different linguistic structures and sound systems from those used in western Europe. The degree of difficulty is appreciably greater than that found, say, in learning Russian—and many people find that hard enough.

The particular issue on which Sir James has been asked to concentrate is in effect whether our nation provides enough resources to enable enough of its citizens to acquire enough of these languages to meet its practical needs for communication and understanding. It is not an easy one to solve, and one suspects that in the last resort the answer may be determined by politics rather than by reasoning. But one thing does seem certain: the provision in our universities for the teaching of Asian and African languages is declining.

One needs to look no further than the School of Oriental and African Studies in London for the evidence. SOAS is a prime centre for Asian language teaching and research in this country, and almost its only resource for work with African languages. Like other university institutions, SOAS has had no alternative but to cut back in recent years.

According to Dr David Dalby, until recently reader in West African Languages at SOAS, writing in *African Research & Documentation*, 35 (1984), whereas in 1970 SOAS had an academic staff of 234, by 1984 this was down to 166, a decline of 29 per cent. More significantly, however, whereas in 1970 57 per cent of the staff were working on languages or on associated subjects such as phonetics and linguistics, by 1984 only 47 per cent of the significantly smaller staff were working in such fields.

The prime reason for this setback was the staff/student ratio: the numbers of students coming forward to study Asian and African languages meant that the 1970 staffing levels were not thought cost effective. Dr Dalby argues that the shortfall of students was because the particular kinds of language syllabus offered at SOAS were insufficiently attractive to would-be language undergraduates, and there may be truth in this. But there may well be other and more fundamental explanations, for example that the British secondary school system tends nowadays to give less attention to the teaching of any foreign language other than French than it once did, or a belief that English is now so much the medium for international communication that there is no longer any need for expertise in the remote foreign languages.

One suspects, however, that the inquiries Sir James is making, not only among universities, but also in the worlds of industry, commerce and government, services, will demonstrate that an ability to make oneself understood in a foreigner's own language is often a powerful factor in

winning his orders or his friendship—and also that the insular British are still rather reluctant to appreciate this.

However, in the Asian field, even in the present reduced circumstances of our universities, provision is still made for the teaching and study of something like 30 major languages, including such as Tibetan, Thai and Tamil as well as Arabic, Bengali and Chinese. Sir James may well conclude that our problem here is not that the resource is inadequate for our national need, but that not enough use is made of it.

With African languages, the situation is different. Whereas the United Kingdom, SOAS in particular, was once a prime centre for their study, now there is teaching and research in hardly more than a dozen of the 1,200 or more languages spoken in Africa. For all West Africa, with its 150 million inhabitants, there is study and teaching of only one language, namely Hausa.

How much does this matter? It is probably true that if one wants to sell information technology to West Africans, this can be done as well or better in English or French than in Yoruba or Wolof. But this is not the whole point. Successful and continuing penetration of the market in Nigeria or Senegal requires some knowledge of the way society in that country is organized and operates, of the traditions, tastes and conventions of its people.

Here language is a vital key, but it also needs to be supplemented by at least gleanings from several other disciplines, such as history, geography, politics, sociology and economics. And this truth is not limited to Africa: even a perfect command of the language in, say, Russia or China, may be inadequate—or even dangerous—if there is not also adequate understanding of the society and its modes of operation.

This brings us to the full conception of Area Studies as they were first perceived in this country by Scarbrough and further spelt out by Hayter and Parry. Our universities need to provide coherent programmes of teaching and research, in history and the social sciences as well as in language and literature, in relation to the more exotic parts of the world, eastern Europe, Asia, Africa, and Latin America.

Moreover the purpose of such programmes is not simply to pass on to students what is available—and being kept up-to-date—to provide businessmen, industrialists, civil servants, and politicians with adequate understanding of these lands and their peoples for their particular purposes.

As Hayter put it, on page 42 of his *Report*, it is also to ensure that there should be adequate "numbers of students who come into contact during their university courses with the history, ideas and problems of the countries to the east, south and south-west of Europe". Some of these students will become teachers at a variety of levels; and so need some of their awareness and knowledge even more widely. The practical point is, this philosophy is, in this wider public awareness, necessary to ensure, both that come forward to become specialists in the affairs of the second and third worlds for the future, and that informed decisions can be made on issues arising out of these affairs that are of real concern

to Britain.

Scarbrough in 1947 and Hayter and Parry in 1960s concluded that not enough was being done in our universities in respect of Area Studies, and they recommended programmes of grants until they had caught up. That Hayter and Parry should do this indicates, of course, that they saw that the Scarbrough momentum had been lost, and the question now is whether sufficient achievement initiated by the Hayter and Parry programmes will survive the cuts inflicted on universities in the last 10 years.

There is no doubt that this achievement was substantial. Specialized, multidisciplinary Centres of Area Studies were instituted as new focus for work which had been done hitherto mainly in older and larger universities and Oxford, Cambridge and London—for example Centres of African Studies at Birmingham and Edinburgh, of Chinese Studies at Leeds, of Japanese Studies at Sheffield, of Latin American Studies at Glasgow and Liverpool, of Russian and East European Studies at Birmingham and Swansea.

Funds were provided to enable Area Studies teachers to travel and to research in their own and graduate and research students were supported with earmarked awards, initially via the Department of Education and Science and the Social Science Research Council. Such students had to satisfy the normal requirements of academic ability, and in addition, as almost by definition, they were unusually capable. As a result, by the mid-1970s it was unusual to find a straightforward undergraduate department in a discipline such as history or geography or in one of the major social sciences without one or more teachers specially equipped to teach and research their discipline in respect of second or third world areas.

How much of this has survived? Most, though not all, of the specific Area Studies Centres are still active. On the average, they may not have suffered more than their "fair share" of the cuts in their universities. However it is arguable that a new plantations outside or on the fringes of established faculty structures, they need particular protection against the apparently ceaseless frosts present and to come. As specialists in the disciplinary departments may be even more at risk. If a department of history, for example, is required to cut back, obviously it will tend to prune at the margin rather than at the heart.

Most of those engaged in Area Studies, at people in the universities outside them, are convinced of their importance, are already engaged in the field, and are already engaged in the field that we do less in this field than other countries that are our competitors. The United Kingdom there are six United Kingdom universities with programmes of Chinese Studies, the Federal German Republic has more than 20 (and the USA more than 100). On a more domestic level, Caribbean Studies—despite their obvious relevance to our own society—are still in their infancy in our universities.

There is a very real fear that, if nothing possible is done to protect Area Studies in this country, and in present circumstances this must mean the last resort that there is adequate funding to them—they could fade away quite quickly. A substantial part of the present university teaching of Area Studies was recruited in the 1960s. Many of them were not then young, and brought to their university posts much experience of non-western societies, for example through experience in the colonial civil service, or through work in the young universities of the third world. It is notable, for instance, that in the early 1980s less than five UK universities had professors of modern history with African experience—Aberdeen, Bristol, Kent, Liverpool and Manchester.

Such people are now retiring, and not many are being replaced. Even if there is a wholehearted replacement (rather than to accept sacrifices for the greater good of the university as a whole), it is not always easy to do so. The old SSRC, which 15 years ago was offering a taught course or research studentship in Area Studies, the Economic and Social Research Council has no specific mechanism to support training in Area Studies. Indeed it seems to believe that its training and research programmes must relate to the purely domestic problems of the United Kingdom.

Furthermore, would-be graduate students see the way the wind is blowing. Whereas in the 1960s or 1970s some of them would have been keen to work on subjects like "The family and food production in the southern Sudan", they think that their chances of academic employment will be much better if they choose to work on subjects nearer home. It is noticeable, too, that the graduate students who have responded to the latest *Annual Report* of SOAS in 1983/84 seem to have come from overseas; at this level, foreigners appear to appreciate what the school has to offer more than native Britons.

It would seem that both Britain's understanding of the non-western world, and its status with the peoples of it, are likely to diminish unless action is taken at least to preserve what has been achieved in our universities in recent years.

The author is chairman of the Committee of Area Studies Associations and is vice-principal of the University of Birmingham.

D. D. Raphael uncovers a salutary incident in British academic history



The professor's pension

Pay bargaining, fixed pensions, court actions for unfair dismissal: you might think that these features of modern life were unknown to the world of higher education 200 years ago. But you would be wrong. Here is a tale of an 18th-century Scottish professor who was dismissed from his post and then reinstated after initiating legal action, who bargained with a noble lord over the terms of a tutorship, and who then had to pester, pull strings, and begin another legal action in order to be paid the pension which he had been promised for that tutorship.

Adam Ferguson, professor of moral philosophy in the University of Edinburgh from 1764 to 1785, was a character. When appointed deputy chaplain to the Black Watch in 1745, he is said to have joined in the fighting at the battle of Fontenoy, despite being ordered off the field by his colonel. According to Sir Walter Scott, the colonel told Ferguson that he was breaching the terms of his commission as a chaplain, to which Ferguson replied: "Damn my commission!"

Even if the story is apocryphal, it reflects his reputation. Fourteen years later, in 1759, when he was seeking a university post, he was ready to take on any subject, whether or not he had studied it before: he was mentioned as a candidate for the chair of church history at Glasgow, was a serious contender for the chair of the law of nature and nations at Edinburgh, and was then appointed to the chair of natural philosophy (physics) there.

David Hume, who supported all these moves, greeted their final success with a quip about Ferguson's genius in mastering so difficult a science in three months. The more congenial chair of moral philosophy became available for him after five years.

Ferguson's tenure of the philosophy professorship was interrupted for 15 months in 1774/75 while he acted as tutor to a young nobleman. He thought he was entitled to take leave of absence if he arranged for a substitute to give his lectures. The Edinburgh Town Council thought otherwise and dismissed him from the chair, but were then induced to reinstate him. Ferguson had been promised an annuity for life to follow the end of his tutorship (not an unusual arrangement at the time), but suggestions were then made that the promise was to be effective only if he lost university appointment.

The outline of this affair, though not the difficulty about the pension, has been known to scholars from a biography of Adam Ferguson published in 1864 and from supplementary information in the records of Edinburgh University and the Edinburgh Town Council. A recent discovery, however, has brought to light a mass of detail about the history of the tutorship and the pension. The information comes from a file of letters and other documents preserved among the papers of the second Earl of Stanhope, now in the Kent county archives.

The discovery of the papers was due to the initiative of Dr David Raynor of the University of Ottawa. They include a number of letters from and to Adam Smith, who played an important part in the affair. These and some of the other papers, with an account of their significance, are to be published in a learned journal by Professor Ian Ross, co-editor of Adam Smith's correspondence, David Raynor, and myself.

Ferguson had resigned his commission with the Black Watch in 1754 to become the tutor or "governor" of a young man who was making the traditional tour abroad for his education. In 1757 he succeeded David Hume as tutor to the Faculty of Advocates at Edinburgh. The stipend was slender, £40 a year, and when Ferguson was given the opportunity of a more lucrative and more important post as a tutor again, this time to the son of a Lord of Bute, he left the Advocates' Library abruptly without giving notice.

After he had held his philosophy professorship for nine years, he was asked to offer an appointment as tutor. The fifth Earl of Chesterfield, adopted son of the celebrated fourth earl, was a young man approaching his eighteenth birthday, more fond of pleasure than of study and judged by his three guardians to need a strong guiding hand.

One of the guardians was his uncle, the second Earl of Stanhope, a man of high moral principles and a mathematician of distinction. In looking for a suitable "governor" for his nephew, Stanhope consulted his friend Adam Smith, who recommended Ferguson.

Smith had himself acted as tutor to a young nobleman, having previously been a professor at Glasgow for 13 years. He had given up his university post on being appointed travelling tutor to the Duke of Buccleuch. Such a move was common enough in those days.

Smith was offered a salary that was probably higher than his income as a professor, but a more important point was that the same sum (£300 a year) was to be continued as a pension for life when the few years of the tutorship were over. This was what enabled Smith to devote himself without distraction to the composition of *The*

Smith communicated this request to Stanhope but was unhappy about the terms of events. While Ferguson's request was perfectly reasonable, Smith felt considerable uneasiness that his own recommendation for a tutor had led to the possibility of an unfair burden for Stanhope and his family.

It then turned out that some members of the Edinburgh Town Council, the patron for appointments at the university, were likely to object to Ferguson's application in February 1774 for leave of absence during the remainder of the teaching session, employing a local minister as his substitute. His friend Hume, asked to go off as a tutor and had nominated John Bruce, the professor of logic, as his substitute. They endorsed the appointment of Bruce but resolved to consider further the position of Ferguson himself. At a subsequent meeting in April 1775 they adopted a resolution moved by the lord provost "concerning the impropriety of professors strolling through the country as governors" and declared that Ferguson's office was vacant.

His friends at once rallied to his cause with two persuasive arguments. First, a professor could be dismissed only for culpable conduct, and it was a denial of natural justice to assume culpable conduct without making proper inquiry and hearing any defences. Second, there were two, if not three, precedents for Ferguson's action. A statement of the case in these terms was sent to the Court of Session by Ferguson with an application that the council's resolution be suspended. Acknowledging the weakness of their position, the council immediately reinstated Ferguson in his post.

That trouble over Ferguson was supplemented with another. He and his pupil were back in London when the affair of the town council was settled at the end of April. Whether the two were still on good terms at that time is not clear; but in the following weeks Chesterfield must have been a trial to all and sundry.

He evidently told his guardians that he wanted a different tutor. They looked around and found one, but then decided, at the beginning of June, that they had had enough of guardianship of this wayward young man. So they told him they were resigning and asked him to find replacements.

One of the first acts of the new guardians was to confirm the appointment of the new tutor and to inform Ferguson that his services were no longer required. Perhaps he was not sorry. According to Chesterfield, Ferguson had said that he would prefer getting his annuity to go abroad again with the young lord; and he may have thought it prudent to return to his university teaching duties in the coming autumn.

But what about the payment of the annuity? Who was liable for it until Chesterfield attained his majority in 1776, and what was to happen after that? Stanhope again used Adam Smith as an intermediary, asking him to tell Ferguson that he would stand by his undertaking. Smith, however, was anxious that Stanhope too should not suffer injustice and Ferguson shared his feelings. They went along to the Solicitor-General, Alexander Wedderburn, an old friend of both. He gave them an oral opinion that Chesterfield would be legally required, as a matter of equity, to indemnify Stanhope for outlays undertaken as a guardian.

Yet when Chesterfield came of age he refused to acknowledge the obligation, contending that the promise of an annuity was conditional upon Ferguson's losing his professorship and also upon his continuing as tutor until Chesterfield's majority. In March 1777 Ferguson felt constrained to approach Stanhope.

There followed a flurry of letters between Stanhope, Smith, and Ferguson, and a flurry of meetings involving Smith, the former guardians, and Chesterfield. The main point of these letters and meetings was to establish that the actual terms of the undertaking given to Ferguson made no reference to his professorship or to the length of his tutorship.

Curiously Stanhope had not kept a copy of his letter containing the formal undertaking. Ferguson sent a copy. He was asked to send the original but (jibbed): if the original letter should be lost in transit, it might be alleged that his copy was not accurate, so he would bring it in person. Adam Smith explained this to Stanhope with the joke and Ferguson perhaps feared he might suffer the fate of an earlier tutor of Chesterfield's who had been convicted of forging a bond in the name of his pupil.

Stanhope had no doubt that Ferguson was entitled to his annuity and was prepared to pay it himself, as he had undertaken. Smith again approached his friend Wedderburn, the Solicitor-General, and obtained from him an explicit written opinion that the courts would regard a word as bound by reasonable acts of a guardian, especially if done for the sake of education.

Wedderburn also advised that if Chesterfield did not accept the obligation of his own accord, Ferguson should initiate a lawsuit against both Chesterfield and Stanhope. This course of action was distasteful to Stanhope, since he had admitted his liability. But along, but he was persuaded to agree to it as a method of putting pressure on Chesterfield.

It was necessary and it worked. Chesterfield blew hot and cold, at times appearing to accept his obligation, then repudiating it. He asked Smith to come and see him, but would not appear when Smith called.

The having dragged on until the autumn, when a Bill for the Court of Chancery was prepared. Late in October, Chesterfield visited Ferguson in Edinburgh and acknowledged that he had acted improperly. Even so, the first payment of the annuity was delayed until January 1778 and the formalities of a legal deed were not completed until June.

It remains to be said that Ferguson, aged 55 at this time, lived for 38 more years, so that in the end he did pretty well out of his annuity for a tutorship of 15 months.

The author is emeritus professor of philosophy at Imperial College, London.

Harry J. Lipkin assesses the contribution of Paul Dirac to twentieth century physics

Last year saw the death of Professor Paul Dirac, one of the giants of twentieth century physics. In the 1920s, Dirac had played a crucial role in the development of a revolutionary quantum theory of the atom. The quantum theory explained many of the puzzling features of atomic physics, which could not be understood with the nineteenth century mechanics of Newton. But the other great revolution of the beginning of this century, Albert Einstein's theory of relativity, was not incorporated into the new theory.

The quantum theory dealt with the failure of Newtonian mechanics to describe the motion of very tiny objects the size of atoms, and provided a dramatic new approach to atomic phenomena. Einstein dealt with the failure of Newtonian mechanics to describe the motion of objects at very high speed, like the motion of the earth around the sun and the passage of light rays near the sun's surface. Einstein provided a new approach to motion at high speeds. All attempts to put the two great revolutions together encountered formidable difficulties. Dirac was disturbed because the quantum theory, on which he had worked so hard, was not consistent with relativity. He set himself the task of finding a way to combine the two and of using his new approach to describe one of the basic particles: nature, the electron.

Today we are all familiar with the picture of the atom, with the electron moving in an orbit round the nucleus like the planets round the sun. Electrons also move freely from one atom to another in materials called electrical conductors. This motion produces the currents that bring us light, telephone messages, heat from electric heaters and power from electric motors. The electrons moving in individual atoms and moving from one atom to another in radio antennae and microwave cookers radiate the electromagnetic waves which appear to us in many different phenomena like light, radio and television signals, heat and laser beams. The new quantum theory of the 1920s explained all these properties of the electron, but completely ignored Einstein's relativity. This seemed very reasonable at the time, because all the phenomena involved only slowly moving electrons and the new effects of relativity only appeared when particles moved at very high speed, near the speed of light. For slowly moving particles, Einstein's equations of motion were nearly the

A man of particular significance

same as Newton's.

Dirac felt it must be possible to obtain a new theory which would describe the motion of very rapidly moving electrons. He developed an equation which described all known properties of the electron and incorporated the principles of both the quantum theory and Einstein's relativity. It described all the electron orbits observed experimentally in the hydrogen atom very precisely and in excellent agreement with the results of experiments, including very fine effects not previously described with the old non-relativistic theory.

But Dirac's relativistic quantum theory of the electron had a very peculiar side effect. It also described a new family of crazy electron orbits which seemed to make no sense at all. Furthermore, it implied that an electron moving in one of its regular orbits in an atom could suddenly jump into one of these new crazy orbits and at the same time release an enormous amount of energy.

Several years later, Dirac himself proposed the answer to the puzzle of the crazy orbits. He postulated the existence of a new particle, the positron, which was the anti-particle of the electron. It had all the same properties, except that it had the opposite sign of electrical charge. The charge of the electron is negative; the positron's is positive. Dirac's equation described the orbits of both the electron and of its anti-particle, the positron. The perplexing orbits suddenly became reasonable.

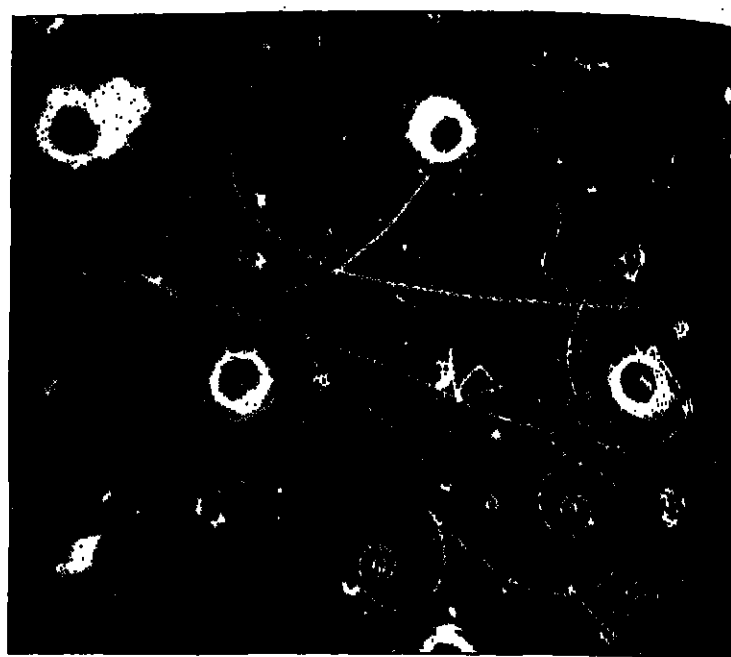
The enormous energy released when an electron jumped from a regular orbit to a crazy orbit also had a simple and revolutionary interpretation

in this new picture. Einstein's theory of relativity said that matter and energy were related; that matter could be converted into energy and energy into matter. Dirac's equation precisely described this conversion. An electron and a positron could annihilate one another and their mass would be converted into energy. The energy of an X-ray could be converted into matter by creating an electron and a positron together. The jumping of an electron into a crazy orbit was simply the annihilation of an electron against a positron.

Dirac's breakthrough introduced the new concept of anti-matter. For every particle, there was an anti-particle which had the opposite electric charge. And a particle and an anti-particle could annihilate one another and turn their mass into energy. This was an inevitable consequence of combining Einstein's relativity with the new quantum theory. Soon afterwards Dirac's prediction was confirmed by experiment. The positron was discovered in the cosmic rays entering the earth's atmosphere from outer space.

Hundreds of radioactive nuclei which emit positrons are now known and some of these have been found to be useful in applications such as brain research. In one experiment an atom with a radioactive nucleus was used which behaved chemically like an atom naturally attracted to a particular chemical found in the brain. When such radioactive atoms were injected into a specimen of brain tissue, they were naturally attracted to this chemical.

The brain specimen was then placed in an instrument called a positron emission tomograph which detects the energy released when a radioactive



Bubble chamber activity indicating the presence of anti-particles atom emits a positron, computes exactly where this occurred in the specimen and produces a picture called a PET-scan which shows the precise point where any radioactive atom and the chemical that attracted it had been. The result is a precise map of the brain showing where the particular chemical related to anti-depression drugs appeared.

The energy which produced these pictures came from the annihilation of the positrons against the normal electrons which were present in the material. Positrons are not usually found in the matter we see every day, which consists of atoms built from nuclei and electrons. A positron emitted into any normal material quickly finds an electron, annihilates it, and emits the energy as two gamma rays (similar to X-rays), each with a very large energy of about 500,000 volts.

Sophisticated instruments like the positron emission tomograph use these gamma rays to detect the annihilation of a positron against an electron in a specimen of matter and pinpoint the exact spot where annihilation occurred. These instruments contain gamma ray detectors which convert the gamma ray energy into a short pulse of

electrical energy, measure the gamma ray energy and record the exact time and place at which the ray was detected.

This information is fed into electronic computer circuits which search for cases where simultaneous pulses of electrical energy are observed in two different detectors in different places of the specimen and check that the gamma rays have exactly the right energy. This shows that two gamma rays were emitted at the same time in opposite directions from the spot. The observation of two opposite rays in two different detectors in different places provides the information that enables the computer to determine the exact location of the radioactive atom that emitted the positrons.

This kind of information is obtainable only from radioactive atoms that emit positrons. Other types of radioactive atoms also emit radiation that can produce energy pulses in detectors, but a single pulse in one detector only tells us that radiation hit that detector. It provides no information about its direction from which the pulse came. The simultaneous pulses in two detectors produced by positron annihilation tell us also the direction. The source of the radiation must have been somewhere between the two and along a straight line connecting them.

The energy of these gamma rays from positron-electron annihilation, 500,000 electron volts, is enormous compared with the energy of only a few electron volts released when an electron jumps from one normal orbit to another in the hydrogen atom. But it is just the mysterious energy which Dirac's original equation showed was released when an electron jumped from a normal orbit to a crazy orbit. The peculiar side effect of the theory, when properly interpreted, has now not only been confirmed by experiment but has found uses in industry, medicine and research which no one could have anticipated at the time.

Another side effect was Dirac's prediction of the spin and magnetic properties of the electron. Like other elementary particles, it spins like a top and behaves like a tiny magnet. Dirac's theory predicted this spin and magnetic properties of the electron, and gave the exact and correct values of the spin and magnetic strength. In 1974 Dirac was asked to review the history of these developments at an international conference on spin physics at the Argonne National Laboratory near Chicago. Someone in the audience asked him if he had been disturbed when he first discovered that these crazy orbits of the electron had appeared in his equation.

Dirac replied that he had spent his life trying to reconcile the two new great revolutions of quantum theory and relativity. He had worked hard to achieve this, but he was not one who was disturbed by the difficulties at once. He resolved all the difficulties at once. It is natural that in the process of resolving some difficulties, other new difficulties arise. This simply sets the stage for the next research project.

The chain of events set in motion by Dirac's revolutionary discovery continues, as physicists discover more and more new particles and attempt to understand the nature of the world by building blocks of the world we live in.

The author is professor of physics at the Weizmann Institute of Science, Rehovot, Israel.

Case for the classroom spy

All teachers must submit to assessment of their competence - there is increasing agreement on this principle. And not just school-teachers: there is no good reason to withhold an extension of assessment to teachers in universities, polytechnics and colleges.

Nor is there any reason to be afraid of what such assessment will reveal. The vast majority of teachers in higher education will be shown to be conscientious and effective in their jobs. Some will be seen to need help to become more effective; a few will be in trouble. Among the successful majority we will be able to identify and learn from the outstandingly gifted teachers such as the ones whose quality I was able to assess when, a few years ago, I interrupted my career in midstream to go back to university to take a higher degree involving both taught course and research.

As a professor of education in two universities overseas I had become increasingly convinced that some of the greatest problems my students faced related to their understanding of the workings of language, especially the English language. A short spell as an inspector of schools back in the UK in the wake of the Bullock report confirmed my own need for a thorough updating in modern linguistic theory, a discipline which had been transformed since my undergraduate days. One of the best courses in the country was offered by Newcastle University's school of English, where I enrolled as a full-time student.

To my teachers I was just another "mature student" - there were several on this advanced course, and the staff had become used even to ex-professors from overseas. Given my teacher training and inspectorate background, it would have been impossible for me not to take some note of the different teaching styles of the lecturers, and I was prepared to be sharply critical.

It would be said at once that our teachers made few concessions to what they would have regarded as "modern" methods. Lectures were chalk and talk in large (some times very large) chunks. Reading lists were long, sometimes unrealistically so. With students of a different background or a different threshold of knowledge, such features could have been wildly inappropriate. But given the character of the selection of students for the course, and the reasonable expectations of what they could take, these methods were vindicated.

Only one lecturer (and he was one of the best) could have been faulted - and only on one occasion, when the students were given a roasting for turning up to a session without having read a key text. The lecturer had failed to check that the book was (a) still in print, or (b) available in the library.

This isolated example of human fallibility must be set



alongside the overwhelming impression of conscientious and indeed inspired teaching. Certainly its effect was to inspire. The traditional model of teacher pouring out information to the taught, who first listen and absorb it and then respond with questions and discussion, was seen in its finest form in the sessions led by the head of the school, the late Professor Barbara Strang. In terms of the psychologist's "span of attention", or any other aspect of conventional educational theory, no one could argue in favour of this kind of two-hour stint. In her hands it was a triumph, and we came away from them "walking on air" - inspired to follow up the leads she had given, the ideas which had been generated, in preparation for the following week.

I will be told there is something untypical about a small department in which every member of staff - from the oldest to the newest - was a winner, and its leader a teacher of genius. But I guess that this kind of quality may be much more widely distributed than we have recognized. Just how widely can only be determined by instituting an assessment procedure in which "consumers" play as much part as educational theorists or managers.

John Honey

The author is professor of education at Leicester Polytechnic.

G. M. Stephen argues for a new type of teacher fellowship

In need of fellow feeling

On paper, and sometimes in practice, the schoolmaster fellowships offered by a number of colleges and universities offer a very good deal. Teachers can take a term off from the trials and tribulations of school life, get up to date with the most recent developments in their field, initiate or pursue research, and meet experts in their field, with all this in the refreshing atmosphere of a university where the question of whether or not 5F should be awarded for their sport session can be allowed to pale into insignificance.

Yet even with the existing schemes there are worries. The teachers who might profit most from a sabbatical term are often those who can least afford to take it, and any teacher with a heavy examination or pastoral load must think twice before giving himself a term off. There are the inevitable rumours about heads who only permit their staff who are least needed to take up fellowships. The Easter term is the obvious one to choose, but it is also the shortest, and does not give much time for any significant research. There are, of course, the benefits of the communication between schools and universities. In practice, there appear to be a number of schoolteachers who talk about the last thing they want to do when they get a term off at a university. Then again, there are those who talk about nothing else.

This sort of present fellowship schemes are, in my view, a generous offer on the part of universities, and do serve a useful purpose. It is the limitations of that purpose that are much more a cause for worry. It is the job of universities to produce original research. School teachers have shown themselves capable of producing books or articles of a standard that would equal that attained by university staff. Nowadays an increasing number of teachers, of high ability, but also a result of the increasing difficulty of

obtaining posts at universities. The teacher who wishes to undertake serious research with a view to publication is very hard to serve at the moment. Schoolmaster fellowships do not really answer to his needs. They are difficult to obtain, too short to be of real use, and at best can only top-up a great deal of other work and effort.

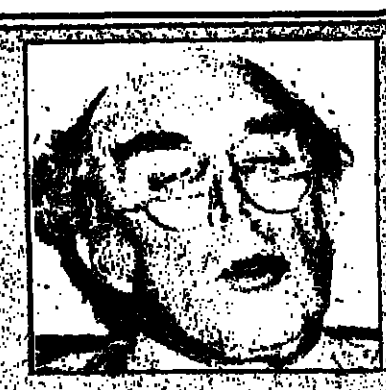
The first requirement is for access to decent university libraries or laboratories, even if only in holiday time. In the case of libraries, some form of sponsorship from college or department to allow borrowing of books would make a significant contribution. To qualify, the schoolmaster would have to prove to a panel that what he was doing had original research value, and was likely to produce a book or articles of sufficient merit to justify the fellowship.

It would last for something like three years. It would carry with it a title that effectively announced the person in question as having been vetted by a university and deemed likely to produce valuable tertiary work. For his fellowship the schoolmaster would gain access to the university libraries, with limited borrowing facilities, or access to laboratories and other research facilities at non-peak times, such as school holidays. He would get an invitation to dine and stay at the college or university perhaps two or three times a year, for short periods. He would be offered subsidised lodging for short stays in holiday periods, while these could be made available, and might be able to claim a modicum of money to set off against travelling expenses to and from the university.

The investment in time, money, and effort would not be vast from the university's point of view; the results might be. I know from my own limited experience of at least five teachers who have struggled to produce work that would be needed would be a recognition of the fact that people who teach in schools are not always beyond the intellectual pale, and that not all good research brains are found in full-time residence at universities. If a major job of our universities is to foster research, there are a number of fields they are at present leaving untapped.

The author is second master at Sedburgh School.

Bernard Crick



Three minus one is still two, even in the theatre

"As Lord Gowrie knows, we are housed in probably the most costly theatre building in Europe. It is surely time the Government, who put it up, either came to terms with that fact, or admitted that they cannot afford properly to fund us as we are at present constituted and examined alternatives. All agree that Britain's subsidised theatre is one of our great glories. . . . Thus Sir Peter Hall in *The Times* (March 11, 1985). By now everyone must know that he has closed the Cottesloe theatre and is laying off 100 actors and staff."

Let me be perverse. Perhaps it was just because, as I reported, I saw Lord Gowrie enjoying at the last Edinburgh Festival some of the toughest and most arduous Beckett ever to appear on the boards, that I want to defend a Tory minister, well if not to defend at least to put in a plea on sentencing. He is my masters, like Sir Keith, more cut than cutting.

It fair takes the breath away, my Lord, to hear Sir Peter say that the Government "put it up" put all that up! I seem to remember that there was long negotiation to found and to build a National Theatre, beginning sometime in the 1930s with George Bernard Shaw. But anyway, by this time Sir Peter took over from Lord Olivier, leaving the RSC to do so (which some thought was already a *de facto* national theatre) the planning committee armed with unhappily imprecise promises of Government support had drawn up some grandiose plans for the new theatre, the great three in one, the Holy Trinity, indivisible, omnipotent and trend-setting. I did a big article for this journal back then on the company and the new building; interviewed Peter Hall and have a thick file full of press handouts and other interviews he gave. In not one of them did he show any doubt about the scale of the enterprise, or about the fatalistic tone of his letter to *The Times* that the elephant edifice was not willed by the company but something thrust upon them by the Government.

Also I would draw attention, my Lord, to the epithet he smuggles into the just and proper encomium to the theatre being one of our national glories. "Britain's subsidised theatre is one of our great glories. . . ." (my italics). That is a bit more on the spill-over effect from the two great companies and the Royal Court and so many good provincial companies; theatres with far less subsidy. Even some commercial productions have shared in England's glory. And I thought the line was that the amount governments have given to the Arts Council, even before this round of cuts, was a national disgrace. Compared to France and Germany we're not a glory. We're in the Arts lobby (for I really am) but better stick to the same tale. Readers in this journal will recognise parallels.

Some of us expressed doubts at the time: Hindsight is melancholy pleasure but may I quote myself to length? I began my article on March 5, 1976 "At last - the National Theatre show". Let me say at once that I can make no clear critical judgement. The long march is nearly over. Next month the first performance will take place under the leadership of Sir Peter Hall in the new National Theatre, the National Theatre Company itself having been waiting in the wings under the leadership of Lord Olivier since 1963. But does this mark a total victory for the great era of British theatre that we have enjoyed for the last 25 years and a permanent consolidation of its gains, or is it a Pyrrhic victory, a

massive over-concentration of resources, an institutionalizing of enterprise and imagination that contradicts all our best contemporary thoughts, whether in culture or politics, that smallness of scale and devotion are best? Will it revivify all other theatres or draw blood from their veins?"

I went on like that for paragraphs, and my file shows that other writers, far more knowledgeable about the theatre than I aired the same doubts, shared a genuine ambivalence which is now, in Sir Peter's legend forgotten. Remember, at that very time public expenditure cuts were beginning. Labour was, indeed, retrenching and certainly the universities were feeling the first cold breath. I made myself unpopular then in my college, I remember, by warning that hard times were ahead and that the university sector would have low priority in public expenditure whichever party won that fateful next election; perhaps should have a relatively lower priority, compared to secondary schools, the Health Service and social services. In the article I pondered or meandered whether we were wise in the universities to have built so many new structures so expensive to maintain.

And, lastly, my Lord, I would like to draw your attention to the specific role of Peter Hall in deliberately taking the Stratford Theatre and their company at the Aldwych out of a position of commercial profitability and the role so that they had to be subsidised. He openly took the view that the efforts of his trustees, when it was still the Flowers family, to make it all pay for itself, were derogatory to the dignity and insufficient for the needs of the great company. All this is set out quite clearly in Sally Beauman's *The Royal Shakespeare Company: a history of ten decades* (OUP 1980).

My article nine years ago was far from alone, in all the massive coverage in asking a worry that the Cottesloe was both a contradiction, official alternative theatre, and unfair competition to the struggling small theatres whose vitality lies in their independence. Hall said in 1976 that it was supposed to be the London show for the small provincial companies - no, no! I ended my article equivocally:

"I am not saying that it is extravagant. Peter Hall is right, we spend too little on the arts in this country - even, I dare say, compared with the rest of the higher education budget; and theatre is for many a very real form of continuing education. But it must not come to diamond cut diamond, that the official National Theatre grinds down the unofficial national theatre. The National is too heavy at the present time. Having got it, it would be a national disgrace for it to operate at half power or at the expense of others. But we are learning well to live with national disgraces of all kinds. I mean to be more optimistic. I mean to wish them luck and God speed. I do. There is some perverse streak in me, however, that makes me fear that we will not love them as much now that they are proud and grand as when they were poor and struggling."

"That's silly. We have just got masochistic about culture in Britain, as if we suspect the authority of anything that is not - unlike Lord Robbins and Lord Goodman - small, struggling and painful. Look at it, Gobbo, as if it were a new university and enthusiast! Yes, says Lancelotti, but that's the rub, suppose we had our time over again, would we have . . . ? But we don't. So good luck, Colossus - you deserve some after such a long labour. But fingers crossed, just do not think of the man who, as Tom Stoppard said, put sturgeon against the Titanic."

Putting the theory to the test

In 1946, when I started my graduate study at Princeton, the positron had already been discovered and the transformation of matter into energy when a positron collided with an electron had been well established. Everybody believed that the equation was correct but there had not yet been any experimental confirmation.

One way to check Dirac's theory is to study what happens when a rapidly moving positron passes close to the nucleus of a heavy atom like platinum. The electric force between the nucleus and the positron deflects the motion of the positron from its original direction and the amount of deflection can be measured in a laboratory experiment. Dirac's equation predicted that the amount of deflection would be different from the amount predicted by the old theory. This difference results both from the new effects of Einstein's relativity and from magnetic forces setting on the positron magnet created by Dirac. The British theorist N. F. Mott had investigated this process for both electrons and positrons passing close to a nucleus using Dirac's equation and had published exact quantitative predictions. This process, now called Mott scattering, could be observed in the laboratory by shooting a beam of positrons at a piece of platinum and looking for positrons coming out of the platinum in different directions.

Such deflection experiments were first performed by the famous British experimenter Ernest Rutherford. He investigated the internal structure of the atom by measuring the deflection of particles called alpha particles when they passed through atoms.

Rutherford's experiments found very large deflections and proved that the interior of the atom was very different from a homogeneous mass like a lump of jelly as many physicists



Paul Dirac in the 1930s

believed at the time. Rutherford's formula showed that such large deflections could not be produced when an alpha particle passed through that kind of atom. But if nearly all of the mass of the atom is concentrated in a tiny nucleus with electrons moving in large orbits around it, the alpha particles can easily pass through the empty spaces between the electrons and the nucleus, come very close to the nucleus and be strongly deflected by the strong electric forces.

The old non-relativistic theory used by Rutherford predicted that electrons and positrons would both be deflected by the same amount when they came near a nucleus. Mott's prediction from Dirac's theory was that the effects of relativity and of the magnetic forces would be very different for electrons and positrons. The Mott scattering formula showed that when electrons and positrons were moving very rapidly at speeds very close to the speed of light, the deflection of an electron would be three times stronger than the deflection of a positron under the same conditions.

This had not been checked when I started my graduate work in 1946. In my thesis research project I compared the deflections of positrons and electrons emitted from different radioactive nuclei when they passed through thin foils of platinum.

An Indian theoretician H. Bhattacharya had studied the process of collisions between positrons and electrons using Dirac's equation. He found that when a positron came close to an electron, there was another process that could occur in addition to the deflection of the positron by electric and magnetic forces. The electron and positron could annihilate one another and turn their mass into the energy of gamma radiation but then the gamma rays could turn back into matter again and create an electron and positron moving in a different direction.

The effect could be observed by shooting a beam of positrons at a target material containing electrons and looking for positrons coming out of the target in a different direction. Some of the positrons detected would have simply been deflected by electromagnetic forces but there would be an additional contribution from the annihilation of the electron-positron pair into gamma ray energy and the creation of a new electron-positron pair.

I found that the experiment was not feasible at that time. Even if I used the strongest possible sources of positrons available at the time and the best possible detectors, I would not get enough positrons into my detector to give a significant effect. Much has changed since those days. The best detectors available for positrons and electrons were Geiger counters. A few years ago, from my laboratory, in the basement of the

Princeton physics building, a young professor named Robert Hofstadter was investigating the possibility of using sodium-iodide crystals as detectors for radiation. But these still required extensive development before they could be used in any experiment. The best source of positrons I could obtain came from a radioactive nucleus which was made by shooting a beam of helium nuclei into a piece of copper in a cyclotron. In collisions between the helium and copper nuclei radioactive nuclei of the element gallium were formed which decayed by emitting high speed positrons. The positron sources for my experiment were prepared in a cyclotron in Washington DC by bombarding a copper target with helium nuclei for a full day. In the evening the radioactive target was flown to Princeton in a private plane. A radiochemist then separated out the radioactive gallium from the lump of copper and deposited it into my apparatus. By midnight I started my experiment and worked night and day for several days, until my radioactive source had lost its activity. The particular nucleus I used had a nine hour half-life; after 36 hours it was too weak to use any more.

Today Hofstadter's sodium iodide crystals are widely available as radiation detectors. One of the detectors used with the new colliding electron-positron accelerators is called the crystal ball and consists of tons of sodium iodide. There had been tremendous progress in the development of particle physics during Dirac's lifetime. His equation and Bhattacharya's scattering are now well established; nobody worries about testing them any more. Indeed Bhattacharya's scattering is now sometimes measured as a convenient way to check whether the apparatus is working properly.

Dirac's prediction that the amount of deflection would be different from the amount predicted by the old theory. This difference results both from the new effects of Einstein's relativity and from magnetic forces setting on the positron magnet created by Dirac. The British theorist N. F. Mott had investigated this process for both electrons and positrons passing close to a nucleus using Dirac's equation and had published exact quantitative predictions. This process, now called Mott scattering, could be observed in the laboratory by shooting a beam of positrons at a piece of platinum and looking for positrons coming out of the platinum in different directions.

Such deflection experiments were first performed by the famous British experimenter Ernest Rutherford. He investigated the internal structure of the atom by measuring the deflection of particles called alpha particles when they passed through atoms. Rutherford's experiments found very large deflections and proved that the interior of the atom was very different from a homogeneous mass like a lump of jelly as many physicists

believed at the time. Rutherford's formula showed that such large deflections could not be produced when an alpha particle passed through that kind of atom. But if nearly all of the mass of the atom is concentrated in a tiny nucleus with electrons moving in large orbits around it, the alpha particles can easily pass through the empty spaces between the electrons and the nucleus, come very close to the nucleus and be strongly deflected by the strong electric forces.

The old non-relativistic theory used by Rutherford predicted that electrons and positrons would both be deflected by the same amount when they came near a nucleus. Mott's prediction from Dirac's theory was that the effects of relativity and of the magnetic forces would be very different for electrons and positrons. The Mott scattering formula showed that when electrons and positrons were moving very rapidly at speeds very close to the speed of light, the deflection of an electron would be three times stronger than the deflection of a positron under the same conditions.

At last - The History of Greyfriars will be completed!



The author is second master at Sedburgh School.

BOOKS

The Spanish chapter

by Martin Blinkhorn

The Comintern and the Spanish Civil War
by E. H. Carr
edited by Tamara Deutscher
Macmillan, £17.50 and £6.95
ISBN 0 333 36952 1 and 36953 X

When the Swiss Comintern official, Jules Humbert-Droz, arrived in Barcelona in January 1931, three months before the birth of the Spanish Second Republic, he remarked of his task that it was the first time he had ever been instructed "to set in motion a movement which did not exist".

He exaggerated only slightly. For in 1931 the Spanish Communist Party (PCE) was a negligible force in the country's affairs. Less than six years later, with the Spanish Civil War not six months old, the PCE's membership numbered over 250,000 and it was in the process of becoming, under close Comintern tutelage, the dominant force within Republican Spain. As the protégé of the only power, the Soviet Union, to provide significant assistance to a Republic assailed by domestic and foreign fascism and abandoned by its fellow democracies, the party prospered. In helping to give the Republic direction and a new model army it unseated a prime minister – the socialist Largo Caballero; it destroyed one political rival, the anti-Stalinist POUM, and mortally weakened another, the anarcho-sindicalist CNT; and, in the cause of bourgeois democracy and Popular Front, it largely dismantled the most profound social revolution unleashed in Europe since that of the Bolsheviks themselves.

No aspect of the Spanish Civil War has generated more political, ideological and historiographical heat than the role of the PCE, and through it of the Soviet Union and the Comintern, within the Republican zone. For their supporters there "was no... alternative to bourgeois capitalism, as the only way to safeguard, and a post-ponement until after victory of all revolutionary experiment; the Republic's defeat was the consequence of its betrayal by the western democracies, Britain and France. For the detractors of the communist line the party's counter-revolutionary role, its intolerance of rivals, and its servility towards the Soviet Union, produced popular demoralization and destroyed the will to fight of countless Spaniards; where conventional warfare demonstrably failed, a revolutionary war they argue, might have succeeded.

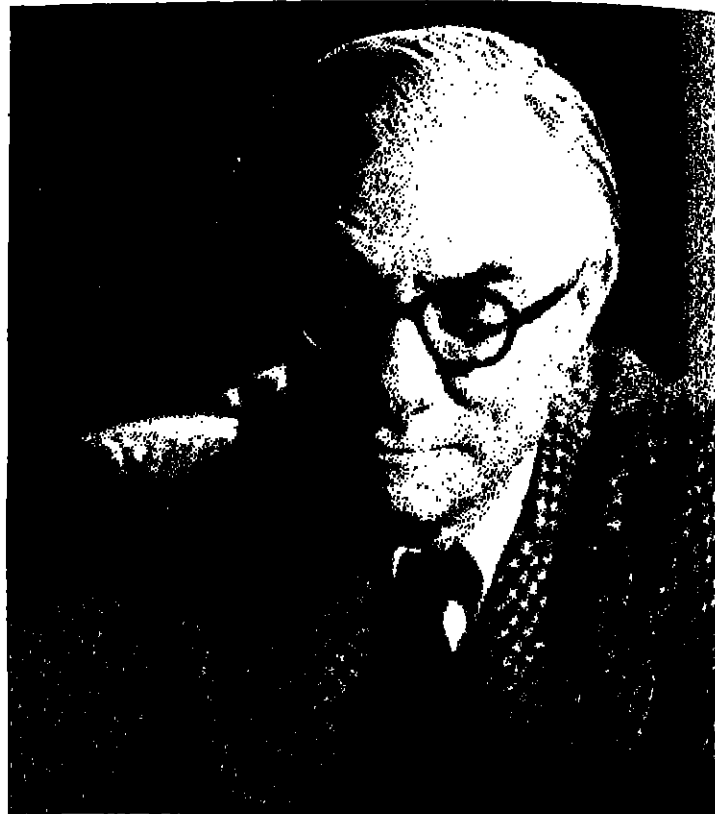
It was hardly to be expected that the late E. H. Carr, always a disparager of

such counterfactual fancies, would get himself directly involved in these debates. None the less, since little new light had been shed in recent years on the Comintern's activities in the Spanish arena, there was every reason to hope that Carr's last, posthumously published work might be of unique importance. His previous book, *The Twilight of Comintern*, published only a month after his death in November 1982, was an impressive achievement in the monumental Carr mould; beginning in 1928, it traced the history of the Comintern and of several of its affiliated national communist parties – including the PCE – down to the adoption of the Popular Front policy at the seventh congress in 1935. Carr, typically, was unwilling to stop there. Tamara Deutscher, his collaborator during the last 10 years of his life, tells us in her introduction to the present book that he intended to carry the story of the Comintern and most, if not all, of its "Sections" right through to 1943, the year of its final dissolution. His strength failing and his work interrupted by stays in hospital, Carr was nevertheless forced to think less ambitiously and, some time in 1981, decided reluctantly to base an entire book upon what had originally been intended as but one chapter of this hoped-for sequel to *The Twilight of Comintern*: a chapter dealing with the Comintern and the Spanish Civil War. When Carr died in November 1982, at the age of 90, the manuscript, we are told, was "practically finished, though not quite ready for the printer".

No, not quite ready. In her "personal memoir" with which *The Comintern and the Spanish Civil War* quaintly but touchingly opens, Tamara Deutscher writes of Carr's method of working. He would, she recalls, begin writing a chapter with a brief draft containing "what I know"; he would then make several revisions, each expanding the previous one through the addition of "unforgettable" incidents. Later she says that Carr's "method" was to "write words in the introduction which follow, that had Carr lived longer he would have 'revised and reworked' his last manuscript – presumably along these well-tried lines. This is surely true, for what we are actually presented with is a text of 85 pages, neither as concise as the originally conceived chapter would doubtless have been, nor remotely as comprehensive as it is reasonable to suppose Carr would have liked. Indeed, apart, this is a very odd book indeed, his genesis as a chapter in a never-to-be-written large-scale work is evident throughout: from the suddenness of the opening ("The Spanish Communist Party... greeted the decisions of

the seventh congress of Comintern with unalloyed enthusiasm"), through the lack of adequate background on the Comintern, the Popular Front policy or the PCE, to the shaky continuity exemplified by the frequent appearance – and disappearance – of unexplained Comintern officials. To this problem, at least, a solution of sorts does exist for anyone anxious and able to pursue it: the reader had best begin by going back to the sections of *The Twilight of Comintern* dealing with the Moscow background and the Spanish Communist Party, and only then should risk page one of the new book.

The failure of *The Comintern and the Spanish Civil War* to stand on its own as a book is compounded by one of Carr's well-known idiosyncrasies as a historian. Tamara Deutscher writes of her own occasional impatience, during their years of working together, "with what I saw as his excessive preoccupation with constitutions, resolutions, formal pronouncements and so on". Carr was, of course, much criticized over the years for a tendency which, when writing about the Soviet Union and the wider activities of the Comintern, it must surely have been difficult to avoid, given the unavailability of other evidence; in any event, the achievement represented by Carr's 14-volume *History of Soviet Russia* – and by *The Twilight of Comintern* – far transcends any deficiencies deriving from his author's method. If, however, his last work is to be treated as a self-contained book and not a mere fragment – and this is clearly how we are asked to regard it – then those deficiencies become central. For in order to follow the Comintern's activities in a single country, sources which might be adequate for one brief chapter in a large-scale study of the organization simply will not serve. The book's principal setting is not, after all, Moscow or even the international stage but Spain; and Carr's continued attachment to published Soviet, Comintern and PCE sources produces a decidedly, and unnecessarily, unbalanced picture. It is not a question of asking a great historian of the Soviet Union to display equal mastery of Spanish history, simply of disappointment that so much relevant published material – not all of it very recent or even in Spanish – is here disregarded. To write of the PCE's advance during 1936-37 without reference to Burnett Bolloten's *The Spanish Revolution* (1979), for example, is to ignore the great conviction – about the dispatch of Spain's gold reserves to the Soviet Union in apparent ignorance of the work of Angel Vilas; to ignore the



E. H. Carr

memoirs and recollections of, for example, Carrillo, Lister, Cordon, and the lower-level militants interviewed in Ronald Fraser's *Blood of Spain*: all this indicates a continued preoccupation with familiar kinds of source material that was indeed "excessive". The consequent lack of feeling for the Spanish setting of Comintern activities produces unfortunate results. Carr's description of Largo Caballero, who would have come a bad second to Attlee in a charisma contest, as "charismatic" and "flamboyant" is extraordinary, while his tendency to disregard non-Communist activities and points of view, or implicitly to accept Communist versions of them, adds up to an account of politics within the Republic that is often misleading – not least with respect to important episodes such as the Barcelona May Days of 1937 and the destruction of a few months later of the Council of Aragon. It goes without saying that the balance-sheet is not entirely negative. While the Comintern itself remains throughout this book a shadowy organization, and Stalin a mostly offstage character, the verdicts reached in *The Twilight of Comintern*, of a Comintern influenced by national parties as much as led decisively from within the Soviet Union, and of a Soviet leadership vacillating in the formulation and execution of foreign policy, are substantially confirmed here. Many readers

will also be grateful for Carr's account of Togliatti's doings in, and report from, Spain, previously available only in Italian. Even so, the most generous conclusion possible is that Carr, well-blessed with a little more time and the necessary powers, might justly have improved on the draft which is the end, he left behind. Failing this, the manuscript would have benefited from much more drastic further treatment than it appears actually to have received: it might either have been edited down to essay length, bringing more sharply into focus the specific part played by the Comintern and its agents, their impact upon the war and its effect upon the organization; or it might have been reshaped and expanded by a sympathetic and knowledgeable hand in order to fill its gaps and correct its imbalances.

As things stand there is no point in beating about the bush, or in being less than exacting towards the last work of a great historian who was himself the most exacting of critics. This is a sadly disappointing book, which is nonetheless a valuable addition to the study of the Comintern and of the Spanish Civil War. Carr's last work, in its present form, is a book that is better to be read than to be left behind.

Dr Blinkhorn is head of the department of history at the University of Lancaster.

BOOKS

Freedom through education

Beyond the Present and the Particular:
a theory of liberal education
by Charles Bailey
Routledge & Kegan Paul, £15.95
ISBN 0 7100 9897 9

Shortly before the launch of "The Great Debate" Richard Peters observed that it had become unfashionable to stand up for liberal education. It was under attack from two sides: an emerging narrow utilitarianism from the political right and a Marxist/relativist critique from the left. Although the left critique seems to have lost some of its headway, utilitarianism is now plainly in the ascendancy (especially at the Department of Education and Science). In this book Charles Bailey has taken his courage into both hands and decided to fight fashion by arguing afresh for the centrality of liberal education in schools and by attacking both sets of critics.

The organizing notion behind Bailey's conception of liberal education is that it should help pupils to become free. Its specifically liberating features are to be found in the generality and fundamentality of the content, which take the pupil beyond the "present and the particular". Bailey also argues that such an education will be concerned with aspects of knowledge and understanding which have intrinsic value rather than only instrumental value. He is not dismissive of all instrumental considerations: part of his case is that the generality and fundamentality aimed at here will serve a general utility rather than one which is tied to the ever changing demands of the present and the particular. He opposes narrowly utilitarian conceptions of education (much favoured by the present government). Here, narrow and temporally specific ends (largely derived from spurious managerial considerations) are assumed as uncontroversial and then taken to justify a switch in the curriculum to a training in a range of limited and limited skills.

One of Bailey's contentions is that the central concern of a general liberal education must be with the development of what Paul Hirst called "the rational mind". In an educational context, this has to be unpacked mainly in terms of the content of

education. Three views are examined and rejected – those of Paul Hirst, Philip Phenix and John White. Bailey's own views on content are based on what he calls an "integrative idea" – the idea of developing persons born into a world of persons inhabiting a physical universe, seeking to understand and live in that world. This idea is given some flesh by drawing on Michael Oakeshott's distinction between two orders of inquiry reflecting two kinds of "goings-on" – those that are essentially manifestations of intelligence and those that are not. Inquiries of the first sort include the humanities proper, the study of various kinds of social institution, mathematics and the fine arts. Inquiries of the second sort encompass the natural and biological sciences. Material will be drawn from these, not with a view to creating specialists, but to enable pupils to gain a broad appreciation of the physical world they live in and how the findings of science and technology relate to social issues. To these must be added what Bailey calls "the serving competences" – skills, understandings, dispositions, and so on – without which a programme of liberal education could not be sustained.

It is also one of Bailey's contentions that the content of liberal education necessarily has implications for the methods of teaching adopted. For example, the development of the rational mind cannot be accomplished by methods of teaching which simply aim to transfer a stock of truths into the pupils' minds. The development of rational autonomy requires what he calls "evidential teaching". And here he has many sensible things to say about what is involved in teaching for understanding.

Bailey has written an interesting and brave book. It clearly reflects his experience of the in-service courses out of which it has arisen: it is written with great clarity, displaying a concern to avoid those misunderstandings which so often bedevil educational debate. Those who belong to the declining world of the philosophy of education will, no doubt, find much to argue about in these pages. For example, those who subscribe to the still fashionable subjectivist position on values will feel that Bailey's objectivism is insufficiently made out. Nevertheless, his book should serve as a rallying point for those who wish to stand up for liberal education again.

Grenville Wall

Grenville Wall is principal lecturer in philosophy and head of the school of philosophy and religious studies at Middlesex Polytechnic.



This Dutch globe was presented to the director of the East India Company, Johannes Trip in 1715. The picture is reproduced from *Old Globes in the Netherlands* by Peter Van der Krogt, published by HES Uitgevers at Dfl. 75.

Irregular verbs

Literacy in Theory and Practice
by Brian V. Street
Cambridge University Press, £19.50
and £5.95
ISBN 0 521 24785 3 and 28961 0

Brian Street's book reminded me of a familiar threefold rubric for preachers and politicians: "Tell them what you are going to say; say it; then tell them what you have said". In other words, it does not consist of a sequence of movements, but rather of one theme and many variations. The theme – literacy – is important and the variations diverse and interesting, yet the book would have benefited from a clearer structure, with the theoretical and practical conclusions highlighted from time to time.

According to Brian Street, reading and writing are taught by a wide range of "agents": from missionaries and indigenous religious teachers (in India, Iran and Fiji) through state school staff in most countries to UNESCO and adult literacy campaigns in the UK and USA. Many of these agents of literacy believe that acquaintance with a written form of a language automatically (and autonomously) confers benefit on the newly literate. The benefits include

logical abstract thought, objectivity, the scientific approach, discrimination between myth and history, access to universal modes of discourse transcending tribal and national boundaries – and hence, to democracy. These are the beliefs underlying the prevalent "autonomous" model of literacy. It is autonomous precisely because it assumes that the imparting of literacy can by itself produce these effects, regardless of the social web within which teacher and taught are caught.

However, Street questions the assumptions of this "autonomous" model of literacy and finds that they collide with evidence from the study of cultures. For example, in some literate societies the oral form of language remains primary, and the written form has to conform to it. Again, psychological tests of "objective" abstract literacy – is important and the variations diverse and interesting, yet the book would have benefited from a clearer structure, with the theoretical and practical conclusions highlighted from time to time.

Street proposes instead an ideological model of literacy, according to which literacy is not a natural, beneficent universal provider, but rather serves the ideas and the political aims of its society. For example, through literacy people can learn to fill in bureaucratic forms, write cheques, obey written signs, read religious and political commentaries. Therefore the meaning of a literacy is the answer to the question "why are these people taught to do these things?" There is

not a neutral and universally useful condition; rather, a particular literacy is a value-laden specific condition which serves society's purposes. One such purpose is social control, which can be exercised by those who decide the kind and quantity of material that is published through the various visual media.

Many readers will regard Street's attack on the autonomous model of literacy as timely, or even as long overdue. The notion that, in the oral phase, thinking lacks logic, precision and abstraction is suspect – if only because, in the absence of agreement between speakers about abstract language rules, communication would be impossible. The notion that the oral forms of a language are "irregular", while only the written form is normative is dubious. It follows from this that the advent of literacy will be no better than the motives which underlie literacy campaigns. Street's exposure of the fallacies of the autonomous model is clear and compelling. However, anyone who looks to this book for advice on how to implement Street's alternative ideological model (whether in British inner city areas, or while on assignment overseas) will look in vain. The author pleads for an alliance of theory and practice when agencies and teachers intervene in people's literacy experience, but the reader is left to work out what this requires "in the field", in his or her own situation. Granted that the ideological model regards each teaching situation as

unique, perhaps one cannot complain. Even so, one or two simple illustrations would have been welcome.

The book appeals to evidence from many disciplines: history, psychology, linguistics, sociology, anthropology. Hence it is difficult for one reviewer to gauge the fidelity of references. For example, Basil Bernstein and William Labov are treated fairly, but Luther and Noam Chomsky are not: (it is always unwise to make a brief reference to Chomsky). Yet many of the issues discussed in this intriguing book are covered in a philosophically disciplined way by texts on hermeneutics; that is, the science of interpretation, and I believe that those who read Brian Street will appreciate him even more if they read Joseph Blecher's *Contemporary Hermeneutics*.

John Bradshaw

The Revd Dr Bradshaw was formerly senior lecturer in psychology in the department of educational inquiry at the University of Aston.

The Fall 1984 issue of *Daedalus*, the Journal of the American Academy of Arts and Sciences, is dedicated to "Values, Resources and Politics in America's Schools". Along with essays by Nathan Glazer, Walter Dean Burnham and others, the journal includes a section on "perspectives on education" which includes a short article by Shirley Williams.

Life of a party

The French Communist Party: a critical history 1920-84: from Comintern to 'The Colours of France'
by Max Adereth
Manchester University Press, £27.50
ISBN 0 7190 1083 7
Comintern: la France: histoire sociale du PCF 1920-1984
by Roger Martelli
Mouton, 120 Francs
ISBN 2 209 05671 3
The View from Inside: a French communist cell in crisis
by Jane Jensen and George Ross
University of California Press, \$28.50
ISBN 0 520 04991 8

Now that the twenty-fifth Congress of the French Communist Party at Saint Ouen has been concluded, and newspaper headlines like "rift among the French comrades" and "le défilé inévitable" are beginning to fade, it is particularly appropriate to turn to these historical accounts of the party. Two of them survey the whole history of the PCF from its foundation in 1920 up to 1984. Max Adereth, who tells us that he writes as a Marxist, takes his story up to the European

elections of June 1984 when the communist vote dropped to 11.3 per cent as compared to 20.5 per cent in the European elections of 1979. Roger Martelli, who is a member of the central committee of the party and who edits the *Quartier d'histoire* for the Institut de recherches marxistes, has been able to include in his account the communist decision to leave the socialist government in July 1984. Jane Jensen and George Ross are a Canadian and an American, who were able to act as participant observers in the work of a cell during 1978 and 1979, and who follow the cell through the 1981 elections. They give assumed names to the cell and to its members, but they assure us that the cell, situated in the south of Paris, is real and that they were accepted as sympathetic outsiders, to take part in the work both of the cell and of the section.

Dr Adereth has written what is undoubtedly the best history of the party to have appeared in English and one which is all the more useful because he has kept up to date with the many publications on French communism that have flooded the market, especially the French market recently. He is well entitled to regard some of them with a critical eye. His approach is to insist upon the life and vigour of the party, claiming that it is impossible to imagine France's political landscape without it. This is an argument which he repeats in different guises for different periods of the party's history. Thus when he considers that the "relative" split between

socialists and communists at Tours in 1920 has been described as a banal accident, which only differed from the many splits which had characterized the labour movement in earlier years because of the intervention of the Russian Bolsheviks, he replies by pointing to the revolutionary tradition from which both the Bolsheviks and the PCF sprang. He obviously prefers the argument that a political movement that has lasted for more than half a century must have a deeper basis than that of an accident or a mistake. Roger Martelli explains why he has used the word "section" (as in the once famous book by Charles Seignobos, *Histoire sincère de la nation française*) and poses the problem of a communist who is writing the history of the party: is he to believe in a political party like other political parties, or one which is in competition with the others? It is "collective", and one which acts and evolves within a society which is itself changing. It should not be presented simply as a monolithic organization, part of a world communist system; it has to be considered in terms of its developments, contradictions, transformations. Yet at the same time it has always had its specific characteristics: its social roots, and its conception of its social role, and its methods. It is, he believes, the ability of the party to change and to adapt itself to new circumstances, while maintaining its fundamental aim of constructing a new society within France, which is the essence of its history and the guarantee of its future.

The rank and file of the party has hardly been studied, and the work of Jensen and Ross is particularly valuable because of this (although the absence of an index is regrettable). They succeed in communicating the intensity and the warmth of communist

activists, as they succeed in demonstrating the difficulties of those who believe that they are members of a revolutionary party, while they are in practice supporting policies which they describe as reformist when they are put forward by socialist or non-communist. But this story of dashed hopes has to be complemented by the more traditional histories. Both Adereth and Martelli give full and frank accounts of the party's motion towards the Khrushchev report of 1956 and his denunciation of Stalin's crimes and mistakes. After the party's success in the elections that were held at the beginning of 1956, when they had polled some 25 per cent of the vote cast, the party was thrown into confusion by these criticisms of Stalin, and by the war in Algeria. Martelli describes the party as being in no position to face the crisis of 1958, while Adereth suggests that the party would not have gained if the leadership had not been so reluctant to discard Stalinism. They both go on to describe the party's recovery from these setbacks.

The whole history of French communism is one of disputes and purges, relative successes and failures. It is within this framework that one should draw conclusions from the story of the Danièle Casanova cell.

Douglas Johnson

Douglas Johnson is professor of history at University College, London.

New and forthcoming titles from EDWARD ARNOLD

Edward Arnold

Poland to Pearl Harbor

The Making of the Second World War

WILLIAM CARR

At the heart of this book is a critical examination of the triangular relationship between America, Germany, and Japan in the period 1936-41, indicating how the Polish war had escalated into a world war by December 1941.

ISBN 0 7131 6438 7 paper 192 pages £8.95 net

The Nazi Dictatorship

Problems and Perspectives of Interpretation

IAN KERSHAW

The Nazi Dictatorship is an attempt to synthesize and evaluate the complex historiography on Hitler and the Third Reich, drawing widely on the findings of a great deal of research, in particular by German scholars.

ISBN 0 7131 6408 5 paper 176 pages £8.95 net

The New History of England series 9

Democracy and Empire

Britain 1868-1914

E. J. HUGHES

Although essentially a political history, Dr Hughes' account is not a narrow cabinet, parliamentary, or electoral history. Political events provide the focus for the wider social, economic, and cultural context.

ISBN 0 7131 6161 2 cloth 382 pages approx £19.95 net approx

Due April 1985

ISBN 0 7131 6162 0 paper 382 pages approx £8.95 net approx

Dreyfus to De Gaulle

Politics and Society in France 1898-1959

JAMES F. McMILLAN

This is the fullest and most up-to-date survey of twentieth-century French history available in English, incorporating the findings and insights of the latest research. It is organized within a conventional chronological framework and sustained by a narrative that focuses primarily on national political life, but at the same time its aim is to analyse, as much as to describe and to set political developments against a wider social and economic background.

ISBN 0 7131 6407 7 paper 296 pages £8.95 net Due April 1985

ISBN 0 7131 6407 7 paper 296 pages £8.95 net Due April 1985

Narrative

From Malory to Motion Pictures

EDITED BY JEREMY HAWTHORN WITH TEN CONTRIBUTORS

This book is an examination of the techniques involved in narrative, the 'telling of tales', drawing on a wide range of examples and considering, where appropriate, the practical applications of modern theory.

ISBN 0 7131 64166 paper 192 pages £8.95 net Due April 1985

An Introduction to Functional Grammar

M. A. K. HALLIDAY

A new grammar of English designed to allow analysis of any text, written or spoken. The worldwide reputation of the author, combined with the practical, applied slant of the book, should ensure the book's interest for anyone studying the theory or the use of language.

ISBN 0 7131 63698 paper 432 pages £14.95 net

Explorations in Language Study Series

Assessing Writing

Principles and Practice of Marking Written English

PETER GANNON

Assessing Writing is addressed to any teacher. It sets out a practical starting-point for assessing, recording and helping individual difficulties with particular kinds of writing.

ISBN 0 7131 64395 paper 96 pages £4.50 net

BOOKS

In search of an 'ism'

Wagnerism in European Culture and Politics
edited by David C. Large and William Weber
Cornell University Press, \$34.50 and \$14.95
ISBN 08014 16469 and 9283 1

Although I know that there were many people in the world who could be called, and wished to be called, Wagnerians, I must confess that I had not been conscious of something called Wagnerism. Having read this book, I am afraid that my consciousness is still dormant.

A group of six American scholars has set out to examine the legacy of Richard Wagner, each contributing a chapter on his influence and how it has been felt in individual countries - Germany, France, Italy, Russia, Great Britain and - despite the book's title - America. Their approach is encyclopaedic rather than selective, their source-ranging meticulous - a 61-page chapter entitled "Wagner's Bayreuth Disciples" achieves an impressive total of 288 footnotes - and their style what the professional world calls scholarly and the world in general calls dull. The task they seem to have set themselves is to record, and record they relentlessly do. The book has notes on the contributors and an index but no bibliography.

There is little here that was not already familiar, although it is no doubt convenient to have in one volume accounts of the ways in which Wagner's cause was taken up in major

countries. But a feeling of naivety and uncertainty hangs over much of what the contributors say, a feeling that they have not fully absorbed the aesthetic meaning and implication of the massive musical achievement which can be the only proper starting point for the kind of survey they undertake. Doubts arise on the very first page of the preface, whose authors set up an entity called Wagnerism and assign to it a role and an importance analogous to that of "Romanticism, positivism, socialism and Darwinism". Having created their "ism" and realized that it does not have a single cohesive intellectual message comparable to the other creeds they cite, they are forced to have recourse to phrases like "the varieties of Wagnerism" to denote what are in fact the activities of separate individuals who need have nothing in common save their love of the master's art.

"The music, texts and ideas of Richard Wagner stimulated a cultural movement that attracted a large number of adherents throughout the world", the preface also tells us. The music certainly did. But the more-or-less impossible texts - by which is presumably meant the libretti of his music-dramas - cannot have influenced anyone, being commodities totally valueless and unreal when detached from the music set to them, while Wagner's "ideas", a hodge-podge of sometimes preposterous notions and prejudices conceived under the pressures of the moment, and often varying with his mood and with the effect he aimed to achieve, were taken seriously by hardly anyone of benevolent mind or rational judgement. Even his utterances on the *Gesamtkunstwerk* and the relationship between words and music in opera have only a quaint historical interest. They have called forth no "cultural movement". Indeed, Wagner's works stand as the very contradiction of his own ideas on "the work of art of the future". Had he practised what he preached - and God be praised that he did not - we should have no *Ring*, no *Tristan*, no *Mastersingers*, no *Parsifal*.

This, I think, is what makes the book such frustrating reading. To be sure, some of the contributors fortunately find themselves talking about Wagner's music in spite of themselves, deserting the intellectual hypothesis of "Wagnerism" and looking at some of the individual responses to this music in one country or another. But over the whole enterprise hangs the cloud of unreality symbolized by an extraordinary sentence in the (unattributed) conclusion: "Nevertheless, in some places the music meant a great deal to the Wagnerian movement." To which I can only splutter: "What else can the Wagnerian movement be about if not Wagner's music?"

There are numerous points in the book at which it is hard to avoid the impression that the authors - all of them historians, as we are told - are not as conversant with the internal or circumstantial constituents of their subject as one would like them to be. A certain American scholar is approvingly cited as having "argued forcefully that the *Ring* cycle was originally conceived under the strong influence of the revolution of 1848-49 and the social thinking surrounding it." Of course it was. Anyone who has concerned himself with the meaning of the *Ring* knows that Wagner saw Siegfried as the New Man, the revolutionary hero who fights for the new social order that shall arise above the ruins of capitalist society. He first started work on his text in the revolutionary year of 1848; he finished it five years later, in exile, after being chased out of his native Saxony for his part in the Dresden revolt of 1849. It was a highly political work and has always been known to be such.

Likewise when a contributor finds it necessary to refer to an article which argues "that Wagner's music dramas were not 'proto-fascist'", we sadly feel how far the book has strayed from the path of profitable investigation. By the time we reach its last pages and read the grudging concession that "Wagner's art still has the power to inspire selected audiences everywhere" (who



The tenor Fritz Soot as Siegfried

selects them, I wonder?), our disbelief has long ceased to be suspended.

The final few pages of the volume are headed "The Decline of Wagnerism". The "ism" of which the authors write has no need to decline because it never existed. As to Wagner's music, of which they have so little to say, it is alive and well and living in virtually every town in the world where opera is played.

Ronald Taylor

Ronald Taylor is professor of German at the University of Sussex.

Confident optimism

Goethe
by T. J. Reed
Oxford University Press, £7.95 and £1.95
ISBN 0 19 287503 5 and 287502 7

It is appropriate that a volume on Goethe should appear in OUP's "Past Masters" series. Goethe is one of the very great masters of the European past: not just because of his role, perceived by the Victorians, in the shaping of modern culture but, as Mr Reed argues, as one whose vitality and confident optimism offer "a corrective to the 'shrunk' image of man's condition" characteristic of the modern self-consciousness.

Brought up a child of the Enlightenment, he led first the pre-Romantic Storm and Stress, of the 1770s and subsequently the Hellenistic neoclassicism of the end of the century. He lived through the French Revolution, the Napoleonic period, and the Romantic movement; and his wit reflects and dislits the ideas of those crucial times. Its constant adaptability and variety reflects the supreme receptiveness of his sensibility.

He was a man of phenomenal versatility: lyric poet, novelist, dramatist, theatre director, politician, scientist. In a judicious chapter on his scientific work, Mr Reed indicates how his pursuit of science, both empirical and metaphysical in approach, was an integral part of his engagement with the world of constant development and change, fundamental to his dynamic view of life. But "he was above all else a poet". His other activities informed his imaginative writing, contributing to his characteristic openness and, throughout his long life, to his "essentially youthful activity".

It was as a poet that, as Mr Reed reminds us, he "virtually created the expressive registers of modern German". To an extent that has no parallel in English, he dominates German literature. Not that German has been short of major writers: when Hofmannsthal's apocryphism "We live in modern German literature: we live in Goethe and some beginnings" appeared - in 1929, the year Thomas Mann won the Nobel Prize - the words of Kafka and Rilke had been published; George and Schiller were still alive; Hesse and Brecht becoming known. Yet Hofmannsthal insisted that it was in Goethe that "everything in our modern literature has its origin".

His imaginative works range widely: from the emotionalism of *Sturm und Drang* to the ironies of his late poetry, with at the classics centre the balance of his poetic drama *Torquato Tasso*, a work whose perfect formal control is geared harmoniously to the idea of civilizing living that it treats. The most influential of his works is *Faust*, which took some sixty years to complete and transformed the old chapbook story, concluding with Faust's salvation. This is properly the one work to which Mr Reed devotes a whole chapter. Even that is very little, and particularly Faust's pursuit of Helen of Troy - the central act of part two and, as a symbolic aesthetic education, leads directly to his salvation - is given very brief treatment. But here as elsewhere, the argument is so lucid and plitly formulated that the reader is stimulated even when moved to disagree. (Does, for example, the count really "stand condemned" in *Tasso*?)

Scholars of foreign literatures have a dual role. The field of their scholarship is centred abroad, and they engage with foreign scholars on their own ground. But they have another responsibility, to transmit to their own culture the insights they profess - not just in their professional teaching, but also to a wider reading public. This cross-cultural popularization presents a considerable challenge, to which Mr Reed rises exceptionally well. His writing is crisp, informative, and compellingly readable. He not only provides a clear survey of Goethe's life and work, persuasively arguing the importance of his achievement, but of how much pleasure and benefit the present-day reader may gain from his work.

W. E. Yates

W. E. Yates is professor of German at the University of Exeter.



Professor Howard Newby with the University of Essex's main computer.

Advent of the knowledge brokers

Howard Newby on the changing role of academic databanks

The social sciences in Britain are now in a transitional stage with regard to available information technology (IT). In the 1970s the application of computers to social science data analysis meant, for the bulk of researchers, the ability to master a convenient software package (typically SPSS) in order to manipulate the data which they themselves had usually collected.

Databanks - such as the Economic and Social Research Council (ESRC) Data Archive at the University of Essex - were still establishing themselves, and it was difficult to obtain many of the large-scale, often government-generated reference surveys (the General Household Survey, the Family Expenditure Survey, and so on) in order to conduct secondary analysis. The computer technology required to manipulate such large datasets was, in any case, most unfriendly to its users, so that developing and expertise in computing seemed to compete with, rather than complement, the time devoted to acquiring the skills of a social scientist.

Vesiges of this state of affairs still exist, but in almost every respect the situation is changing rapidly. These changes have been prompted by developments in IT - but only in part. Equally important has been the growing availability of government-generated data (including the Census) to academic researchers and - perhaps the most difficult to quantify - the shifts in fashion in social science research which have, in this instance, produced a discernible trend towards more empirical research compared to the more abstract, and even speculative, theorizing which was often a feature of the social sciences in the 1970s. In this context the distinction between primary and secondary research has largely broken down. Social scientists now frequently expect to use a multiplicity of data sources and techniques in order to analyse the particular phenomena being studied.

The computer, in turn, is being put to its proper place, as no more and no less than an extremely useful tool available as part of the normal research process. The impact of IT can be conveniently sub-divided into three categories. First, there is the ever-widening availability and declining real cost of computing power through the development of the microcomputer. The role of the home computer should not be overlooked: a new generation of computer-literate students in the social sciences is almost upon us, and their needs and demands are likely to have a substantial impact on course content and the displacement of any lingering "technophobia" among their teachers. It should not be too long before the academic workstation on every lecturer's desk becomes a reality. As the amount of computing activity carried on for ordinary administrative, teaching and some research work increases, so computer literacy will be

come an entirely unremarkable skill somewhat equivalent to the ability to use a pocket calculator at present. This in turn will lead to a marked increase in the demand for access to data resources.

Accessibility to data will also be governed, however, by the development of "user-friendly" statistical packages, not only for mainframes, but also for the microcomputer and microcomputer. Desk-top access will be based on interactive computing packages which will reduce the dependency on the often tedious and time-consuming business of batch processing.

Third, there are the far-reaching possibilities afforded by inter-computer communications, whereby local, national and even international computer networks are being created, allowing on-line access to remote computer systems. At present the creation of such networks is frequently hampered by indifferent telecommunications standards and the incompatibility of systems and software. However, the creation of the Joint Academic Network (JANET), which will soon link together a large number of British universities, will allow university-based social science researchers to gain rapid access to datasets held at any particular network "node". As a result the demands on existing data archives are likely to increase, but also the role of the data archive will change from that of simple "data provider" to that of "data broker".

The experience of the ESRC Data Archive, which was founded in 1967 and is now the largest social science data archive in the world outside the United States, supports this contention. When the Data Archive was established, quantitative social researchers were usually limited to the computer resources provided by their home institutions. The Data Archive then met the needs of its constituency by physically transferring data (usually on magnetic tape) directly to the researcher for use on that person's computer installation. The advent of networking allows the possibility of direct on-line access from a remote site and/or "distributed access", whereby data files are downloaded to the user's local or regional computer centre and accessed there.

The Data Archive has found that an increasing number of its users now prefer to access their data in one or other of these ways. For example, the Data Archive was able to distribute the Small Area Statistics of the 1981 Population Census to the academic community by lodging the data and associated software in eight regional computing centres, capable of providing mass data storage capacity and specialist support. Last year a similar service was initiated with the Central Statistical Office's Macro-Economic Time Series Databank.

Working together, the Data Archive

and the computer centres ensured that the most effective mode of data storage was used and that researchers were spared the complications of setting up such a large database. The Data Archive provided a central source of expertise in the substantive use of the data to supplement the advice available at the individual centres, which tended to be concerned with matters of computer access to the data file. The Archive could then reallocate some of its resources from the supply of multiple copies of the same dataset to its other functions which could not be so easily decentralized, such as data acquisition, user training, data documentation and the monitoring of data use on behalf of the depositor - in other words, the development of "data brokerage". In the future the establishment of comprehensive networking is likely to push the development of the Data Archive and other more specialist databanks more firmly in this direction.

Computer networking will not, therefore, render data archives redundant. Indeed, as data "brokers", their role will be enhanced. Accessibility to data involves far more than improving the technology of computer networks. First, the data itself must be acquired; a long and often complex process at the best of times. Depositors quite understandably require reassurances that data will not be misused once it becomes so readily accessible on a

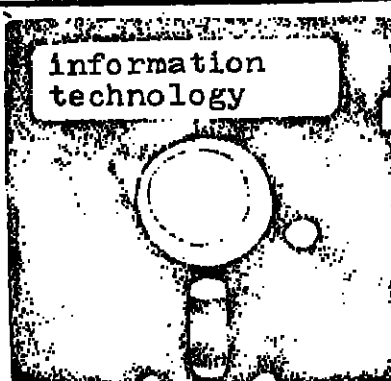
network. This applies particularly to government-generated data which has, in recent years, become more readily and readily available to researchers, but where considerations of security, confidentiality and responsible use must be satisfied before distribution can be delegated.

Second, large and complex datasets must not only be cleaned and processed but adequately documented before ready access becomes feasible. Such processing includes the production of subsets and software packages in a "user-friendly" format. For example, a successful testing package of data drawn from the General Household Survey has been developed by researchers in the department of sociology at the University of Surrey, and the Social Statistics Research Unit at City University is planning a range of subsets and other "customized" packages drawn from the National Child Development Study.

Third, the notion of brokerage involves a range of activities analogous to "after sales service": the creation of an advisory service, the administration of a user network, support workshops, seminars, and so on. If the scarce resources invested in large-scale data gathering exercises are to be fully utilized, some such programme is essential.

Technological developments and the provision of a wider range of services guaranteeing broader access to data must, therefore, go hand in hand; otherwise the potentiality of the new technology will not be fully realized. It is also necessary to organize these activities in a proper and systematic manner, so that the compilation of data depositors can be retained - ideally increasing accessibility to data should encourage, rather than deter, its supply. However, unless data dissemination, in this broader sense, can be efficiently organized, the existing possibilities of IT will be lost.

One example of how far such dissemination can go is evidenced by the BBC's decision to provide a comprehensive statistical portrayal of British society in the 1980s on interactive videodisc. This will involve taking major datasets, hitherto readily accessible only to trained researchers, and making them available to novice users in the classroom, library and home via the BBC microcomputer. Although the capacity to engage in the sophisticated analysis of raw data will clearly be limited, the prospect of the next generation of social science students arriving at university already in possession of the knowledge and skills embodied in the ability to manipulate the BBC's Domesday database is likely to lead to a further rethinking of how social science curricula at degree level should be organized. The Domesday



Project also provides an interesting test-bed for the public dissemination of data which, only a few years ago, remained *de facto* inaccessible to all but a few specialists.

These are encouraging portents. Not only is the total volume of information being created and recorded on the increase, but much of it is becoming available more quickly and in increasingly "user-friendly" forms. Much of this information is thus now manipulable in ways and to a degree which were impossible a decade or so ago. One by-product of this is that many researchers now conduct a routine data research before embarking on their own investigations in a manner analogous to the more conventional library search of written materials. The early availability of data is also encouraging more secondary analysis, often in collaboration with those who generated the data in the first place. The shortage of funds to undertake primary data collection is also contributing to this trend. All of these factors contributed to an increase in the use of the ESRC Data Archive by over 30 per cent last year.

To some extent the increasing use of machine-readable data also reflects a renewed enthusiasm for empirical research on contemporary British society. It is widely recognized that the complex and far-reaching character of recent social, political and economic change has rendered obsolete many of the generalizations developed in the 1960s and 1970s. The benefits capable of being derived from recent developments in IT not only allow an up-to-date and comprehensive portrayal of the emergent social processes to be achieved, but they also reduce the risk of researchers being side-tracked into data manipulation for its own sake. Properly organized, therefore, IT will enhance, rather than detract from, the quality of substantive social science research.

Howard Newby is professor of sociology at the University of Essex and Director of the ESRC Data Archive.

Memories of war

The Second World War in Fiction
edited by Holger Klein, with John Flower and Eric Homberger
Macmillan, £25.00
ISBN 0 333 25964 5

Some years ago Vernon Scannell remarked that "the Great War has become a powerful myth while the Second World War, to a succeeding generation, has never been other than a historical event." This may partly explain why Holger Klein's earlier *The First World War in Fiction*, published in 1976, seemed more exciting than does his new collection of essays forming a kind of sequel to it. Also, while the earlier work contained some excellent studies of individual war novelists, the present volume does not always avoid an impression of superficiality by dealing in national blocks: Britain, France, Germany, the Soviet Union, the USA and Japan. With a chapter attempting to cover a whole national output, rather than a single writer, we inevitably have the impression of a literary Cook's tour which is certainly informative, but in which we learn too little about too much.

The individual contributors organize and categorize large amounts of material in different ways. In the section on France, John Flower and Ray Davison grant a major role to the Occupation. In writing of German war fiction, Alan Bance sees the question of German guilt as a continuing theme. On the Soviet Union, Don Piper relates different types of war writing to various political periods from the Moscow trials to the post-Stalin novels of the 1960s. All contributors have some difficulty, however, either in defining war fiction or restricting themselves to it. Harry Guest has quite a lot to say about Japanese war films (those of Mizoguchi and Kurosawa, for example), while Klein points to overlaps between novels and memoirs, biographies, documentary narratives, and so on. Klein comes closest to facing the thorny problem of what constitutes a genuine war novel and how far war can be genuinely fictionalized. His conclusion is that "the fundamental principle is that fiction does not show the historical event *quid*, event but *quid* impact".

One is reminded here of an essay published many years ago by Nicola Chiaromonte. Referring to the early chapters of Stendhal's *La Chartreuse de Parme* in which Fabrizio Tienzi, Waterloo and then asks at the end of the day: "Did I really take part in a battle?" Chiaromonte interprets this as a figurative expression of the war novelist's problem. Can the "war novelist" claim with any real conviction that the subject of his novel is war itself? Can he genuinely bridge the gap between individual experience of a great historical event and the objective significance of that event? Chiaromonte even says that "the more naively and genuinely man experiences an historical event, the more the event disappears and something else takes its place." These are important problems which obviously trouble one or two contributors but which are not genuinely tackled by any of them.

Nevertheless, there is much of in-

terest in this volume. Klein guides us through an enormous number of books on Evelyn Waugh's *Sword of Honour* trilogy and David Piper's *Trials by Battle* to Bernard Stiegler's *Apprenticeship with Venus* and Jack Higgins's *The Eagle Has Landed*. Flower and Davison claim, surely contentiously, that "the [French] literary masterpieces inspired by the war" are Sartre's *Les Chemins de la Liberté*, Camus's *Le Peste*, and Simone de Beauvoir's *Le Sang des Autres*. Bance gives reasons for the fact that there were no self-conscious avant-garde techniques in German war fiction before the 1930s, while Guest rightly emphasizes the subtlety and obliqueness of Japanese writing and comments on the Japanese capacity - in war writing and elsewhere - "for forgetting, ignoring or bypassing what is unpleasant or inconvenient". As regards the American war novel, Eric Homberger underlines the strong realism of Norman Mailer and James

Jones and their cynical attitude to "official" war ideals. He points out that their war novels have now passed into almost total critical neglect with the shift of critical enthusiasm away from realism. He deals with a lot of material but surprisingly makes no reference to William Styron's *Sophie's Choice*. Writing of the Soviet Union, Piper inevitably provides more political and ideological detail. He shows the close links between war fiction and politics, ranging from the high achievement of Vasilii Grossman's *Life and Fate* to the "uncommodated bulk and minuscule intellectual content" of party novels by Fyodor Panforyov, Semyon Babayevsky and others.

John Cruickshank

John Cruickshank is professor of French at the University of Sussex.

Freudian insights

The Nightmare of Reason: a life of Franz Kafka
by Ernst Pawel
Harvill Press, £12.95
ISBN 0 00 272548 7

One of the enduring mysteries of European literature is how a sickly, obscure Prague Jew, who died over sixty years ago, could have permanently captured the contemporary imagination and launched an apparently inexhaustible industry to process his work and life.

Like Ronald Hayman's exhaustive 1981 account, Ernst Pawel's new biography is detailed, accurate and well-researched. But whereas Hayman's study was dully academic and at times pedestrian, Pawel possesses a narrative drive that brings both subject and environment vividly to life. Neither biography adds much that is new and both follow a very similar chronological line - even to the extent of using the same quotations - but where Pawel scores is in his novelistic gift for creating a character or scene with extreme economy of means. His book is full of telling portraits of Kafka's circle - his friends and writers, struggling to assist themselves in the

fetid atmosphere of nineteenth-century Prague, that "little Mother" whose merciless claws held Kafka fast throughout his life.

Pawel's method is that of a non-dogmatic Freudian whose scepticism is tempered with an acerbic humour which Kafka himself would not have found amiss. This is the familiar evidence of friends' reminiscences, Kafka's own diaries and letters - especially the famous missive to his father - are sympathetically but critically surveyed. The result is a non-idealized picture of Kafka which clarifies his peculiar strengths without disguising the not inconsiderable faults. Pawel is particularly acute on the twisted sexual mores of bourgeois society in Prague at the turn of the century, and he has some harsh things to say of the comfortable fear and contempt of women which Kafka shared with most of his class.

A very human and paradoxical Kafka emerges from these pages: a man tiddled with self-pity and yet one who could attract the deepest affection from men and women alike; a man whose arrested development prevented him from leaving the family home and yet one who embodied quintessentially the "unhoused" individual; a man pathologically aware of his unsuitability to compete in life and yet one whose commercial career, at least was one of steady, if not spectacular, success.

Conventionally enough, Pawel sings the praises of Kafka's 1912 and 1913

emphasis: the one representing the literary breakthrough, the other the first overt signs of the tuberculosis which was to kill him. The latter, of course, is the decisive turning-point, for his illness clearly split Kafka from family and from the debilitating need to compete with his father.

Pawel has deliberately refrained from interpreting the texts themselves, though his book is full of sharp insights. Instead, he has concentrated on revealing the rich convolutions of their social and psychological sources. Thus he neatly avoids the trap of explaining the work through the life, while anchoring the former securely in the concrete historical reality. Indeed, one of the successes of the tragic failure of the characters who flit through this story (including Kafka's three sisters) were to perish in the concentration camps of the Third Reich.

Doubtless this will not be the last word on Kafka's biography: or on its symbiotic relationship to his work, but for some time to come as an intelligent and highly readable starting-point for any serious student of the strange world of Franz Kafka.

Michael Butler

Michael Butler is head of the department of German in the University of Birmingham.

WHICH COMPUTER?
choice as the best buy
IBM PC Compatible Machine

We've got their baby.

Interam are delighted to announce their appointment as an authorised dealer for the exciting range of Ericsson PC Computers.

Systems start from as low as £1675 + VAT

Good educational discounts available.

Call us now for further details and to arrange a demonstration.

INTERAM
COMPUTER STORE

INTERAM COMPUTER STORE 46 BALHAM HIGH ROAD LONDON SW12 8AQ
TEL: 01-475 8326 TELE: 895 4072

The new Ericsson Personal Computer comes with the best customer support services in the country.

With Ericsson you get Teach-Yourself Software; instructions in plain English; a Dial-an-Expert Service and regular customer training courses at the Ericsson PC Training Centre.

The new Ericsson PC is IBM compatible. It runs all IBM popular software.

What's more, the Ericsson PC is smaller, neater and quieter. But the big difference is

Ericsson. Because Ericsson give a helping hand to get you started.

The new Ericsson Personal Computer



ERICSSON

The Armstrong Multi Micro UNIX* System V

— now —

Processor, 10MHZ 68000 with
Memory Management
Memory, 512K bytes (may be
extended in units of 512K bytes)
Main disk 36M bytes Winchester
(larger may be specified)

8 x V.24 serial ports with M/S
control

Weight: Less than 22.5Kg.

£6,450

System V UNIX* by UNISOFT

C Compiler (preferred with UNIX*)
FORTRAN 77
PASCAL

ARMSTRONG

**MICRO
ELECTRONICS LIMITED**

CASTLE HILL, DUDLEY,
WEST MIDLANDS DY1 4QG.

TELEPHONE: 0384 283488 TELEFAX: 0384 121111

All the world's technology in less than one square metre.

To meet the educational requirements of a rapidly expanding
technological world we have created Technology Platform. A working
technical environment which brings together the use of computers,
electronics, pneumatics, hydraulics and electrical control in one self-
contained module which will fit in an area of less than one square metre.

If you wish to have comprehensive
details of this exciting educational development
write to:
ECONOMATICS (Education) Limited (Technology Platform), Epic House,
9 Ormeau Road, Handsworth, Sheffield S13 9LQ. Tel: 0742 698801.

ECONOMATICS
TECHNOLOGY TEACHING EQUIPMENT

When you're lost for words

Susan Hockey on applying
computer power to literary analysis

Dr Johnson's definition of the lexicon
grapher as a "harmless drudge" is
perhaps as apt a description of the
computer in the study of literature.
The computer is very good at filing,
counting, searching and sorting into
alphabetical order, but it has a long
way to go before it can emulate Dr
Johnson's value judgements.

Computers have had a mixed reputation
among literary scholars. Some
enthusiasts have been led to make
claims which are not really supported
by the results — for example, in problems
of disputed authorship. Others
have set the computer tasks which the
computer — in the present state of the
art — is not particularly well equipped
to undertake. But the use of computers
in literary research has a considerable
history and there is now a substantial
body of knowledge to help the scholar
make best use of the machine. When
used sensibly, the computer can extend
the range of scholarship, not simply
by assisting with mechanical chores
and thus leaving the researcher more
time for critical analysis, appraisal,
or by building up a picture of a text,
or features of a text, which would be
quite impractical by any other means.

The most obvious computer application,
and indeed the first, is the production
of word counts (lists of words showing
the number of times each word occurs)
and concordances (lists of words showing
each occurrence of a word with its immediate
context and an indication of where in
the text the word occurs). The technology
has come a long way since Father
Roberto Buss began to prepare the
works of St Thomas Aquinas for
computer indexing in 1949. Although
the procedures remain broadly the same,
advances in hardware and software
make the process much easier and
quicker for both the scholar and the
computer.

During the 1960s and 1970s, computer-
generated concordances were published
for major texts (including at least
two for the works of Shakespeare)
for the use of scholars in studies of
linguistic usage and literary style.
Concordances have also been used
as the basis of other applications.
Examples in recent years have included
studies of the influence of one author
on another, preparing a theme
through a literary work, and investigations
into undeciphered scripts such as
Minoan hieroglyphs and the Indus
Valley inscriptions.

In the past, a major difficulty of
computer-aided analysis has been the
time and effort spent in getting the text
into the computer. Father Buss used
various kinds of mechanical punched
cards with a limited character set. By
the mid to late 1970s, however, texts
were being input on upper and lower
case terminals, and the advent of
multi-font optical character reading
in the form of the Kurzweil Data Entry
Machine (KDEM) five years ago has
opened up new possibilities.

Although a variety of typescript
reading machines do exist, the KDEM
is unique in its ability to read multi-
font printed text. It can do this
because for any new font, it must first
"learn" the shapes of the letters in the
text. It is not restricted to the Roman
alphabet; but can handle any script in
which the letters do not join. The one
at Oxford University Computing Service
has successfully read: Greek,
Cyrillic, Coptic and Hebrew — in the
latter case a small program reverses
each line after it has been input. The
speed and quality of the reading depends
very much on the state of the original
text — manuscript, old printed books,
newspapers and other poorly printed
texts are not suitable — and also on
the skill of the operator in teaching the
machine. About 30 pages an hour can
be scanned on good text — equivalent
to inputting a novel in about 10
hours.

Once a text has been input to the
computer it can be kept and copied for
others to use. Indeed, several text
archives now exist for the purpose of
preserving and distributing text. The
Thesaurus Linguae Graecae, at the
University of California at Irvine, has
compiled an archive of all literary
Greek text up to the fourth century AD,
some 40 million words. The Texts de

la Langue Française in Nancy has a
large archive of French text on which
the new French dictionary is based.
The complete Corpus of Old English
was input in Toronto for the Dictionary
of Old English. There are at least
two versions of the Hebrew Bible and
several of the Greek New Testament.
And at Oxford the Text Archive has
amassed over 500 texts in 25 languages,
many of which are readily available
to other scholars.

Literary scholars can now use a
computer without learning a programming
language. Most academic computer
centres provide a concordance generating
program which is easy to use. The most
popular is the Oxford Concordance Program
(OCP), which was written at Oxford University
in the late 1970s and was designed to be as
flexible as possible. It runs on many
different mainframe computers, and a
microcomputer version is in hand.

OCP allows the user to avoid most of
the anomalies which plagued earlier
concordances. It can sort words into
any alphabetical order which the user
defines and can allow for diacritical
marks (such as accents, umlauts and
tildes) and multiple letters (for example,
Spanish ch or ll) so that words
containing these are listed in the order
in which they would appear in a
dictionary. Letters can be equated for
sorting — essential in a text with upper
and lower case letters.

One of the major problems in computer-
aided text analysis is lemmatization.



Kurzweil scanner.

It is the classification of words under
their dictionary headings. Although
concordance programs do not set out
to lemmatize the words, much can be
done with an unlemmatized concordance.
Lemmatization programs do exist,
they are easier to write for languages
such as Latin and Classical
Greek which inflect heavily, but they
can never be completely accurate. The
usual procedure is an algorithm which
removes suffixes from words and then
looks up the remainder of the word in a
computer-readable dictionary, where
the computer finds the necessary information
about the lemma and grammatical
form. Ambiguous forms can be marked
on the printout or dealt with
interactively by displaying the line of
context on the terminal and inviting
the user to supply the correct form. As
yet no dictionary or lemmatization
software exists for literary English; nor
are they widely available for other
languages.

The inability to lemmatize automatically
renders any but the most simple
syntax analysis of literary text a lengthy
and error-prone activity. Simple
syntax analysis, such as the investigation
of certain kinds of clauses or
tenses of verbs, can often be done with
a concordance of selected words. In
one study of conditional clauses in
classical Arabic, the researcher made
concordances of all the Arabic words
for "if" with enough context after the
keyword to give the syntactic context.
In another study of the past tense in
Old English, differences of "have"
and "be" followed by the past participle

were retrieved. The past participles
were identified by their endings, using
a facility to search for all words which
end in certain letter sequences. This
may produce a few extra erroneous
forms, but these can always be identified
and disregarded.

The concordance-based application
which has aroused most suspicion
is stylistic comparison and disputed
authorship. Although the computer
can be an invaluable aid in stylistic
comparison, it is no more than an aid.
For example, there have been a number
of studies of the plays of Shakespeare,
but they have not led to many positive
results. A good example of what can be
done is the thorough work of Anthony
Kenny on Aristotle's *Ethics*. Kenny used
a concordance program and a pocket calculator
to look at the distribution and occurrence
of common words in the *Nicomachean
Ethics* and *Eudemian Ethics* and the three
books which appear in both. Kenny divided
these words into groups (for example, participles,
prepositions, adverbs, and so on) and was
able to demonstrate that in the use of
these words the disputed books resemble
the *Eudemian Ethics* far more than they
resemble the *Nicomachean Ethics*. Rather
than selecting just a few words which
satisfied what was being tried to show,
Kenny's investigation covered about 60 per
cent of the vocabulary in the texts.

Another good use of concordance is
in the preparation of critical editions.
The concordance will list together all
variant spellings of a word and it can form
the basis of a glossary. Concordance programs
can also be used to investigate compositional
variations: it is just as easy to look
for semi-colons and dashes as it is to look
for words.

Collation of manuscripts is another
matter. Although the task of establishing
where two or more manuscripts of the
same text differ may, on the face of it,
seem simple, nobody has yet written a
satisfactory general-purpose collation
program for prose text. It is not easy to
specify in the computer's terms when two
sentences are variants of each other and
when they are not. Collating verse text is
simpler because the variants should match
the metre, but even with the KDEM the effort
of inputting all the texts does not make
it worthwhile. However, if the collation
has been done by hand, the computer
can be used to analyse the results. Cluster
analysis can be used to see which
manuscripts are most like each other and
the more distant ones. The computer can
also be used to generate a collation table
which shows the differences between the
texts. It is very easy to repeat the analysis
on different sections of text or on different
variants.

One other area where computers
can be helpful is metrical analysis and
sound patterns. At least two programs
exist for the scanning of Latin hexameters
where the rules which govern the metre
can be simulated. Both programs are
about 98 per cent of lines other than
the remaining 2 per cent of lines which
being ones which contain Greek words
or do not follow the rules. Lambic and
other metres can be approached in a
different way by compiling a metrical
dictionary of the text. The method is
to make an alphabetical list of the words
in the text, then enter the metrical
form of each word in a list. In this way
the scanner for a given line is only
entered once, even though the word
may occur many times in the text. The
text can then be scanned with the aid
of the dictionary and the relevant
metrical rules. Once the scanner has
compiled, the computer can find all
instances of particular metrical patterns
very easily and compile tables and
distributions are required.

Alteration can be studied without
difficulty in a language where each
letter or letter sequence always makes
the same sound. Where this is not the
case, a phonetic representation of the
text can be made using the same
method as the metrical dictionary, but
both metrical forms and phonetic
transcriptions are stored in the dictionary,
the combined effects of sound and
metre can be studied.

Many scholars have found that the
computer can open new horizons in the
study of literary texts. Although many
applications, particularly in manuscript
collation and syntax analysis, have
been wholly satisfactory, for studies in
vocabulary usage the computer is still
coming an essential tool for scholarship.
Today Dr Johnson's concordance
program in lexicography have the computer
to relieve the drudgery of their task.

Susan Hockey teaches computing in the
School of English at Oxford University
Computing Service.

New angles on office life

Christine Tongue on the use of
educational video in business studies

You have to fight technology with
technology. That's the conclusion
many educationalists are reaching, as
they attempt to teach business studies
courses against a background of a
rapidly changing business world.

To maintain credibility, business
studies must now include extensive
treatment of computer technology, a
development which several colleges
have recognized by merging their computer
studies and business studies
departments. But the resulting business/information technology (IT) subject
area is a difficult one to tackle,
especially for teachers whose own
experience may predate the silicon
chip "revolution".

There is, however, one important
resource to which they may turn for aid
— the low-priced video-cassette. Indeed,
a growing body of video material is
now available in this area — but there
are critical problems in selecting suitable
programmes and using them effectively.
Many programmes on offer are shallow
adverts for new technology; much is
simplistic; and very little has been designed
with high-level educational purposes in
mind.

Video programmes used in business
studies currently fall into two main
categories. Some are intended to inculcate
attitudes and develop personal
management skills. Others serve to
extend the student's experience beyond
the classroom and demonstrate how
things are done in business. This last
category is becoming increasingly valuable
in the field of new technology, where it
is important for students to see how the
technology is applied to specific business
problems. To be truly useful, however, these
two categories must merge.

Videos from the established training
film makers such as Rank Aldis, Oak
Learning International of Peterborough
and John Cleave's Video Arts of
London have usually been produced as
a result of training managers in large
companies perceiving a need and commissioning
a film to illustrate the points they want
to make. The essential limitation of this
kind of video is that the zenith of their
achievement lies in their success in inculcating
corporate loyalty and good behaviour
in an interesting, entertaining way.

When transferred to the academic
environment, the value of such objectives
is not only questionable; they are
radically undermined by the arrival of
a new technology that is set on rendering
many long-prized management "skills"
obsolete. Bodies such as the Business
and Technician Education



"Who sold you this then?" Video Arts' first training film (1972).

Council (BTEC) have gone some way
to realizing this by introducing an IT
element into the "people and communication"
section of its courses. Students
on the BTEC National diploma now learn
about the uses of the microcomputer as
well as more traditional business skills.

One of the few video production
companies tackling the issues raised by
new technology from an educational
standpoint is London-based TV Choice,
which is pioneering a series of programmes
called *Computers In Action*. Says executive
producer Norman Thomas: "Until now
management films have been very much
concerned with the communicating ability of
the manager, and his ability to coordinate
over different activities of the company...
But one of the main objects of new
technology is to replace such functions.
The manager's mission is then to implement
and extend computer-based systems. The
ideal of office automation is directly
opposed to the old image of the multi-
purpose, trouble-shooting manager. And
new training resources have to reflect this."

Although it is difficult to gauge the
impact of videos on teaching in this
area, they do have distinct advantages
over alternatives: textbooks tend to
make computers more rather than less
remote and abstract to the students,
whereas video, drawing on its social
currency minted by universal TV-viewing,
can bring home the applications
of computer technology in a positive
way and act as a supremely effective
focus for class discussion.

Such attractive qualities can be further
enhanced in the classroom, not only by
students taking notes while watching,
but also by an instruction to pick out
controversial points and to think about
how the material presented could be
applied to their own experience.

It is for this reason that the realistic
case-study, which hinges on the use of

new technology, is such a potent genre
of educational video. Whereas text
tends to look at the detailed workings
of a computer, video fleshes out day
experience. And as students on day
release on BTEC National courses are
often working at computer terminals, a
video case-study can help them understand
how their activity relates to the computer
systems in the company as a whole.

Video measures up well against even
"hands-on" experience. In the real
world of most colleges, access to
computers is limited. And even the
most luxuriously equipped cannot hope
to illustrate adequately the use of
computers in the commercial environment.
Another essential factor lies in the
ability of the video to address directly
the problematic nature of new
technology. In the world of the old
management training film, the objectives
and systems tended to be fixed. The
new technology puts all in doubt,
opening up wide new possibilities for
the way business can be structured and
conducted.

As TV Choice's Norman Thomas
puts it: "We see our job as exploring
the new potential of the computer,
rather than laying down rules for how
it should be used. Students must be
shown how computers are being applied,
not so they can simply mimic these
applications in the business world,
but so that they can think up new,
more imaginative ways of using the
technology in the future. A well-made
video programme is one of the few
economic ways of giving them such
insight."

Many of the problems with much of
the video material available arise from
the commercial position of the producers.
Production values may be high —
many of the producers are ex-BBC —
but their content is extremely variable
and determined by the corporate sector,
which largely foots the bill for their
work. Companies such as Video Arts,
for example, are reluctant to invest
too much of their energy in producing
computer-based videos, as the programmes
date too quickly for them.

They look for videos to last four to five
years — a useful video about computer
applications becomes irrelevant within
two years. But the declining cost of
video technology is letting in a new
breed of video producer with different
loyalties and values. At TV Choice, for
example, the producers originate from
a computer publishing background, so
that they may be more aware of the
importance of a sceptical and critical
education for users of technology.

As a result, the company's series,
Computers In Action, is among the
most suitable material available today.
Latest in the series is *The Business
Microcomputer* (£35.00, including
training kit) which explores how low-
cost, multi-purpose microcomputers
can be used in a variety of ways in the
business environment. A "multi-user"
computer system puts a terminal on
the desk of three members of a
management team, and allows them to
both work independently and share

the information they access. "Integrated"
software, on the other hand, allows
a single worker to pull together
several different strands of important
company business into a single computerized
job.

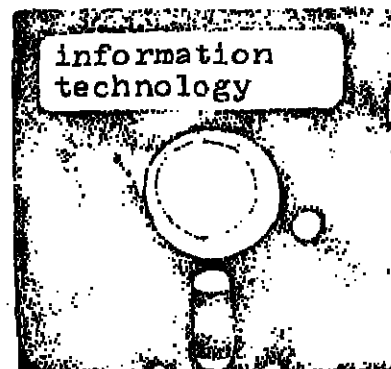
Using a series of entertaining case-
studies, the programme takes common
business problems and shows how they
can be tackled by a range of different
computer systems and related equipment
from several different manufacturers.
This is an important consideration,
as different makes of computer embody
different technological philosophies,
and students need a broad range of
experience of these products.

With its worldly, down-to-earth
approach, concentrating on what you
can do with the technology rather than
the intricacies of how it works, *The
Business Microcomputer* is an important
breakthrough in the development of
video training in this area. The video is
split into six segments, each ten
minutes long, and can be used to draw
students into the subject from a position
of ignorance and provide them with
a level of good, practical awareness.
Used carefully with the training materials
available, the programme is a powerful
teaching aid.

Other programmes in the *Computers
In Action* series include *The Automated
Office* (£28.75), an exploration of more
advanced forms of office technology
and their ergonomic and environmental
implications. Programmes which can
usefully complement the *Computers In
Action* series are Team Video's documents
outlining the conflict that can arise over
the implementation of computer systems.
Whereas the *Computers In Action* series
explores the impact of the computer on
middle management, the Team Video
productions explore the effects on the
lower rungs of the ladder, especially the
de-skilling and re-grading that new
technology necessitates among low-level
clerical workers.

A good example of the more traditional
management video is *The Front Line
Manager* (1973) from Guild, a "fly-on-the-
wall" case-study set in a busy factory.
The programme shows how conflicts arise
through misunderstandings between manager
and staff, and through poor communication
with other departments. But innovations
such as networked office computers
and electronic mail will radically alter
these communications problems and
transform the role of the all-purpose,
coordinating manager beyond recognition.

The response of many of the more
established training film-makers has
been to produce programmes which
are as broad as possible, covering a
wide range of topics. For example,
Guild's two-part video *Word Processing*
(about £150.00) explains in rather
leaden vein how to use a Philips word
processing system. Video Arts' *What
is a Word Processor?* (£485.00) does a
similar job — except much more enter-



tainingly — for an IBM machine. More
to the point is *Somebody Told Me*
(£485.00) from Millbank Films of London,
which describes how management
can introduce new technology into
offices and overcome staff resistance
and fear. But it is naive in approach
and ignores problems of job loss
and the de-skilling of work.

British Telecom has put out a range
of videos on every aspect of telecommunications,
from the digitization of the telephone
network to teleconferencing. However,
they are a mixed bag, ranging from the
simplistic, and they seem aimed
primarily at people thinking of careers
in British Telecom.

The same objection could be levelled
at videos from the Careers and
Occupational Information Centre of the
Manpower Services Commission, which
are being used on postgraduate
secretarial courses as an introduction
to new technology in all areas of
working life. Of these, *New Technology
in Offices* (about £30.00) demonstrates
word processing, electronic mail and
various pieces of computer software,
while *New Technology In Factories*
(about £30.00) covers robotics in car
assembly. Although these are useful
as a brief guide to the application of
computers in many areas of work, the
producers' unacknowledged aim is to
persuade young people into computer
jobs. They are also deeply misleading,
because they do not attempt to get to
grips with the many problems that
bedevil systems arising from the ignorance
of computer users and the sharp
practice of some computer manufacturers.

From such a mound of diverse
adverts for the new technology and
simplistic commercial thinking, the
teacher must quarry with extreme
care. Little of it has any useful educational
content. For a more realistic
approach, I recommend turning to the
BBC's *Electronic Office* series, which
is well-made and provides many case-
studies of the application of office
technology. But because the series was
made as broadcast television programmes,
it lacks the structure and direction
of programmes made for
educational purposes.

Christine Tongue is a lecturer on BTEC
National courses in business studies at
Southwark College of Further Education.

Books from The Institution of Electrical Engineers

Principles and practice of multi-frequency telegraphy

J.D. Riephs

The author, who has been working for many years in developing the Piccolo models, has produced a clear and complete exposition of MFSK principles together with the wider applications of MFSK 1, such as would be useful in a more general context.

216pp, 229 x 148mm, casebound
ISBN 0 85341 022 7, 1985
IEE Telecommunications Series number 11

UK £26.00

Advances in radar techniques

J. Clarke (Ed.)

This volume collects together the outstanding papers published on radar technology. Equipment capability in this field has been advancing rapidly and radar engineers will use this book to help to keep abreast of developments in the field.

530pp, 297 x 210mm, soft covers
ISBN 0 85341 021 9, 1985
IEE Electromagnetic Waves Series number 20

UK £28.00

Measurement and instrumentation for control

M.G. Mylrold and G. Calvert

Intended as an introductory text to measurement and control, the book will cover the following topics: electromagnetic flowmeters, orifice plate flow measurement, modelling of force weight systems, temperature measurement, inspection, analytical instruments I and II.

296pp, 229 x 148mm, casebound
ISBN 0 85341 024 3, 1984
IEE Control Engineering Series number 28

UK £17.00

ORDERS WITH REMITTANCES TO:

IEE, (Dept. TH3) P.O. Box 26, Hitchin, Herts, SG5 1SA.
Note: A package and handling charge of £1.50 per volume (maximum £5.00) will be added to all orders which are not pre-paid.

Phase Noise in Signal Sources (Theory & Application), revised paperback edition

W.R. Robins

A theoretical understanding of imperfections in the spectral purity of oscillators and synthesizers is developed from first principles in a step by step fashion, using the minimum level of mathematical sophistication which is compatible with a full understanding. This understanding is then applied to the engineering problems involved in the design of low noise, high purity, synthesizers. Systems engineers must specify the spectral purity requirements for synthesizers used in radar and communication systems. Methods of carrying out such system calculations are also described.

336pp, 229 x 148mm, paperback
ISBN 0 85341 026 X, 1984
IEE Telecommunications Series number 9

UK £17.00

Computer control of industrial processes

S. Bennett and D.A. Linkens (Eds.)

The book describes the structure of computer control schemes as used in the process industries. It covers the techniques used to design the control algorithm and considers the requirements for computer and computer programming languages used in implementing real-time computer control schemes. A number of case studies describing applications in various industries are included.

220pp, 229 x 148mm, paperback
ISBN 0 85341 025 1, 1982
IEE Control Engineering Series number 21

UK £24.00

For further information and 1985 Publications Catalogue contact:
Book Publishing Department (Ref: TH3) IEE, P.O. Box 8, Southgate
House, Stevenage Herts, SG1 1HQ. Telephone 0438 313311.



POWERFUL. FLEXIBLE. AFFORDABLE. A NEW BREED OF COMPUTER FOR THE WORLD OF EDUCATION.

For seven years, Research Machines have been Britain's pioneers in the demanding world of microcomputing for education and research.

Nimbus, the new Research Machines microcomputer, combines exceptional 16-bit power with remarkable flexibility. This, together with economic prices, makes Nimbus a very exciting investment.

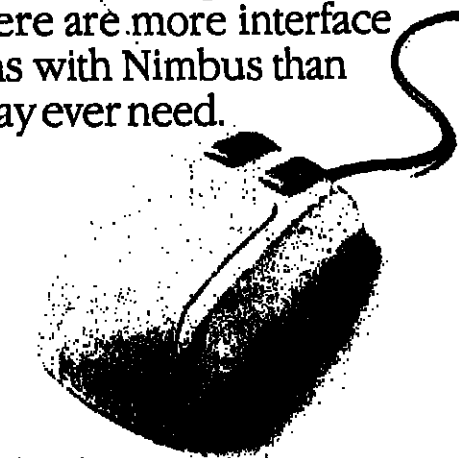
FAST, POWERFUL, VERSATILE

Nimbus is probably the most advanced 16-bit machine for its price. It evolves from a completely original design concept, based on an 80186 8MHz processor, VLSI gate array technology, dual-bus architecture, and a separate graphics processor. It shows an amazing turn of speed and an insatiable capacity for work, whether in stand-alone mode, in administration, or as a networked classroom computer.

ORIGINAL FEATURES

Among the many totally new ideas incorporated in Nimbus is Piconet, a unique input/output system which enables the

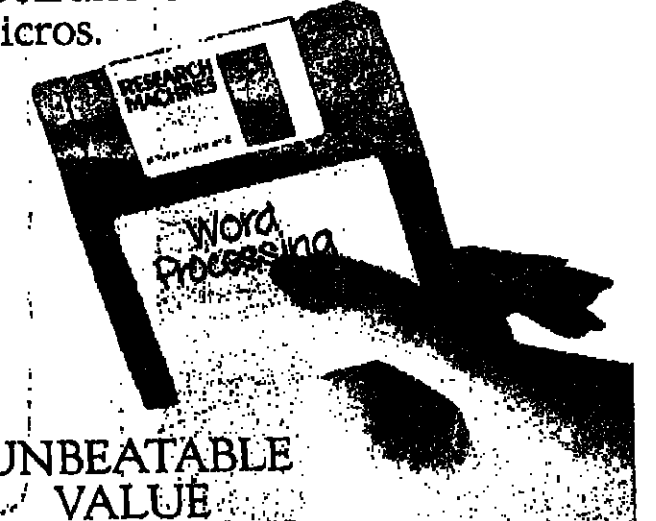
computer to drive up to thirty peripherals, instruments or devices from a single I/O port. In fact there are more interface options with Nimbus than you may ever need.



MODULAR, UPGRADEABLE

Within the same neat unit, you can specify Nimbus with single or twin 3½" disc drives. With a built-in Winchester. Or without discs as a network station. And talking of networks, Nimbus uses the MS-NET* operating system, which will allow up to 64 stations

transfer of software from RML 480Z and other educational micros.



UNBEATABLE VALUE

As a stand-alone machine, Nimbus competes on price terms with any comparable micro. As a network system, it leaves the others far behind.

For example, Nimbus PC 1 (192K RAM and 720K 3½" disk drive) costs £945**

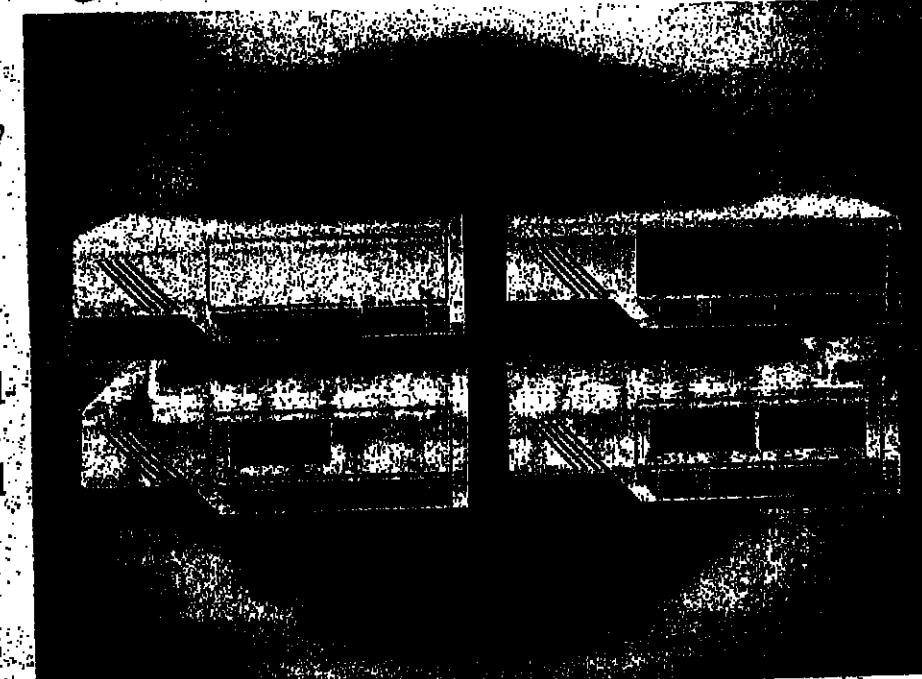
In common with all Research Machines computers, special prices and software packages are offered to educational buyers.

There is much about Nimbus that cannot be conveyed in words.

Its fast, high resolution graphics, for instance, or its elegant, user-friendly design.

To find out more about Nimbus, use the coupon below, or phone us.

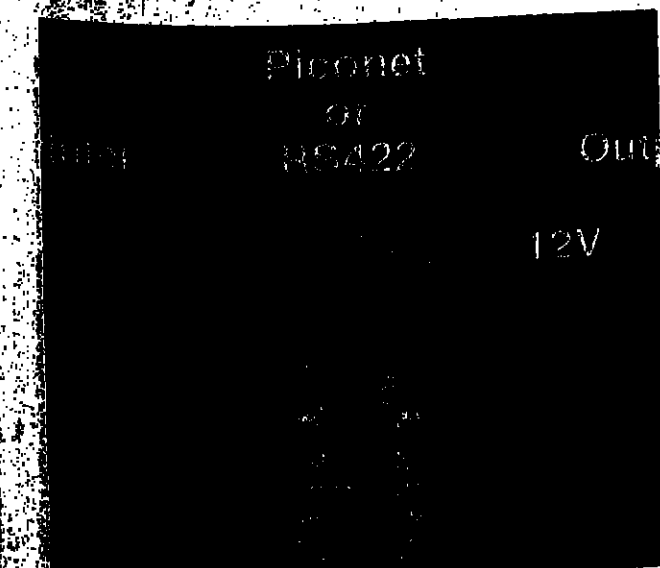
*MS-DOS is a registered trademark of Microsoft Corporation.
**Price for educational customers, students, teachers and lecturers.
Prices do not include VAT.



RM NIMBUS

FOR EDUCATIONAL USE

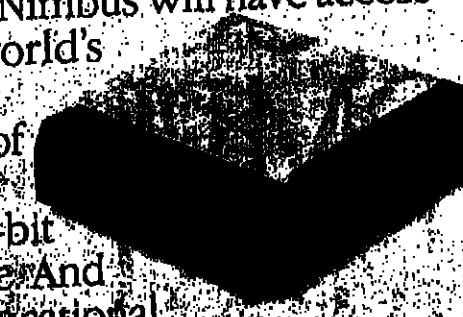
COMPUTER



to share software and network facilities at high speeds.

MORE SOFTWARE THAN EVER

With its MS-DOS* operating system, Nimbus will have access to the world's largest library of professional 16-bit software. And with educational users in mind, Nimbus has been explicitly designed to facilitate the



To Caroline Rawle,
Research Machines Ltd,
Mill St., Oxford.
Tel: Oxford (0865) 249866.

Please send me full details of the new RM Nimbus ☐

I should like to attend a Research Machines Open Day ☐

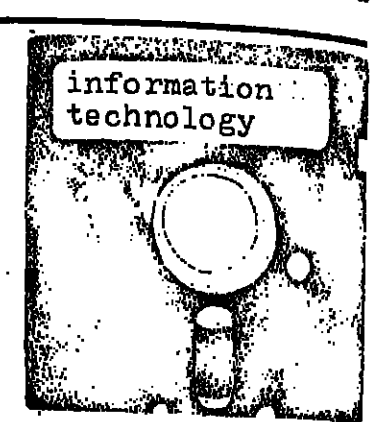
Name _____

Position _____

Address _____

Tel _____

RESEARCH MACHINES



Unfair handicaps in the IT stakes

Academics, on the other hand, may follow standard SERC rules which exclude everything except the direct attributable costs of the project question.

It is of course possible to subject a grandly conceived project to pit-picking suggestions. Brian Oakley has been suggesting that the three major programs will damage long-term fundamental research in Britain as "emotional claptrap". But before accepting the hard-headed view that the hard-headed men in industry know best, it is worth remembering that few of the breakthroughs which mark the previous transformations of IT - the silicon chip, the transistor, the digital computer itself - arose out of research in the university, at the time to offer any industrial payoff. Britain, it is particularly salutary to recall, has men like Alan Turing might have given the country a flying start in the postwar years - had those in charge of money and resources not dismissed their pleas for support as the nagging voice of "pure science" pleading for expensive toys which would be of no possible practical value.

There is also worth glancing, in conclusion, at the institutional arrangements the Japanese have made for their "Fifth Generation" programme. This is organized by the Institute for Advanced Computer Technology (ICOT), which is a research establishment in its own right, staffed by the brightest and best young brains available from industry and the universities and headed by an academic! The role of industry is plain: Individual companies are invited to participate in the programme if they wish. If they choose to do so, they must work along lines laid down by ICOT, being free to profit from the results of that work as it proceeds. Under no circumstances, however, do the Japanese seem to be prepared to hand over responsibility for the direction of research to their own, extremely successful, industrial



Brian Hoskins is professor of meteorology at the University of Reading.

● **Piers Bizum** is a freelance writer, and co-author (with Professor Igor Aleksander) of "Reinventing Man: the robot becomes reality" (Penguin, 1984).

PRESS



**Introduction: Operating Systems, Process
 Control, Multiprocessing Issues, Multiprogramming
 Output Management: Device Control, Man-
 Machine Interface, Main Memory Management, Multi-
 User Management, High Level Mechanisms: File Ma-
 nagement, Access and Naming, Protection and Security
 System Design.**

**and Technology for Parallel Image
 Analysis**

by
Lavialdi

330.60222.B0 (UK only), ISBN: 0-12-444820-9
 based on a workshop on "Multiprocessor Archi-
 tecture for Image Analysis," held in Pollignano, Italy in June
 1985, from leading academic, government, and com-
 mercial sources illustrate the many differ-
 ent techniques taken to solve problems in design and
 implementation of processors of varying complexity and
 architecture from image chips.

Models of Human-Computer

Technology at 25, 95.

Andrew Monk
£22.50/\$24.50 (UK only) ISBN: 0-12-50458-5
This book is to share some of the knowledge in research into Human-Computer Interaction at the sharp end of the design process for systems engineers and programmers.

Experts in Expert Systems
J. J. Coombs
£15.00/\$9.50 (UK only), ISBN: 0-12-187656-2
... automated knowledge-based problem solving have been demonstrated in useful performance and planning aside in a wide range of domains. However, been widely adopted for routine use collected in this volume report current research of the problems blocking more widespread use.

Applications of Data Bases
Gardarin and Erol Gelenbe
\$26.00/£17.00 (UK only), ISBN: 0-12-275550-2
... a workshop on "New Applications of Data Bases" held at Churchill College, Cambridge University between 2-3, 1983.

HEADINGS: Introduction, Relational Data Bases, High Level Interfaces, Expert Systems, Engineering Data Bases.

... to change without notice

ON, NW 1 7DX
A 32887



PHOTO: SUSAN THOMAS

Provision for technician training

Helen Connor and Alan Gordon on manpower shortages at technician level

During the past year a great deal of attention has been paid to the high demand for, and in places shortages of, manpower skilled in information technology (IT). Much of this attention has been focused on IT specialists with graduate or postgraduate qualifications or with a number of years' experience. The current and expected future mismatch between the demand for manpower highly qualified in IT and the supply of such staff is becoming increasingly apparent.

However, it is becoming increasingly apparent that the demand for technicians is also increasing, especially among IT users—that is, companies using computing or electronic equipment or devices in their products or processes. The possibility of future shortages of IT technicians could be damaging to the further widespread adoption of IT across the whole economy. The government clearly shares this concern and included technicians in the scope of the committee set up under the chairmanship of John Butcher, which is currently reviewing IT skill shortages. The committee's second report *Changing Technology—Changing Skills* is specifically concerned with shortages at the technician level.

But what is a technician? What skills do they possess? And what jobs do they do in IT areas? Defining a technician or trying to find a description common across industrial sectors is a major problem that has to be tackled in discussing technician manpower issues. Traditionally, the term 'technician' has been used in engineering and manufacturing industry, and until relatively recently there has not been a good equivalent in the business or service sector. Since technicians are increasingly being recruited to IT areas across all sectors of the economy in a wide variety of jobs, they are by no means a homogeneous group. IT technicians are now employed in a range of diverse activities, which span design and development, test and quality assurance, telecommunications, maintenance, production engineering, instrumentation and control, software, and computing. They can require different levels of skill, which range from doing fairly routine testing work or routine re-programming, for example, to relatively high-level skills in microelectronics design or in instrumentation engineering. The qualifications they possess can

also be quite varied.

This diversity of skill requirements makes it extremely difficult to estimate the size of the IT technician population with any accuracy. Figures from the Engineering Industry Training Board (EITB) show that just under 200,000 technicians are employed in the engineering industry (not all in IT areas), and the best guess estimate from the Department of Employment for the whole economy is about 250,000. Although getting an exact fix on the existing stock of technicians in IT is extremely difficult, what seems fairly certain from available evidence is that more and more companies who are users of IT equipment or systems are recruiting technicians with IT skills. In addition, there is some evidence from current IMS research into IT manpower that a number of employers are already experiencing shortages of software and maintenance technicians.

The application of IT in previously mechanical and electro-mechanical processes in engineering and other industries such as chemicals, oil, processing and textiles is producing a particularly high demand for electronics maintenance technicians who

have knowledge of computer-based control and processing equipment and for quality assurance technicians with diagnostic skills. Of special significance are technicians with a combination of IT and more traditional mechanical skills who can assist in the development and further exploitation of new technology within firms. In the services sector, there is a growing requirement for technicians to maintain and repair IT equipment and to assist systems engineers.

IT developments seem to be having a polarizing effect on skills in the technician domain. At one end there is a demand for people requiring almost degree-level higher education and a lengthy period of training to gain high-level technical skills and knowledge. At the other end of the spectrum, there are jobs previously carried out by trained technicians but which are now being done by relatively unskilled operatives who have only received introductory training in IT.

The term 'IT manpower' also covers computing staff working in business or data processing functions. Both graduates and school leavers are recruited to jobs as trainee systems analysts and programmers, and some of the more junior grades could be considered as IT technicians. The main

manpower trend in computing shown in the latest National Computing Centre (NCC) survey is a rapid growth in the demand for analysts/programmers and analysis with high-level, creative skills, and a reduced demand for those with basic programming skills. The turnover of analysts/programmers was higher in 1984 than in 1983, reflecting an increased level of demand for manpower with these skills.

On the supply side, given the variety of IT technician jobs, it is not surprising to find that the existing provision of training and education comprises a number of different courses and qualification schemes. The main technical qualification in IT subjects is awarded by the Business and Technician Education Council (BTEC). BTEC courses in IT are run in colleges of further education and polytechnics, and are available on a part-time or full-time basis, often with sponsorship from companies. In 1983/84, over 20,000 students registered on national and higher national BTEC courses in IT subjects, mostly in electronics, electrical engineering, telecommunications, and computer studies. Total student awards in IT-related subjects have more than doubled since 1979/80 (Figure one). In 1983/84 almost four times as many students received certificate qualifications, which are often taken part-time through day release, than the generally full-time diploma. However, over two-thirds of students in computer studies in 1983/84 received diploma qualifications. These computer studies courses have been proving especially popular with students and some employers, with the number of awards made doubling between 1982/83 and 1983/84: in 1983/84, 1,500 received the national award in computer studies, and a further 1,200 received the higher national diploma or certificate.

The City and Guilds of London Institute (CGLI) also validates courses in IT subjects, although their focus is generally towards the lower end of technician skills. However, they have recently introduced a new IT scheme, designed to accommodate a range of skill levels, covering both hardware and software skills. This is the 726 Information Technology scheme, which is offered in three main IT areas—programming and software, electronics and hardware, and computer operations and applications. The 726 scheme will be available at varying skill levels, from introductory to advanced in each of the three IT areas, and will include extensive provision for technical training. CGLI hope that the coverage and flexibility of their new scheme will be attractive to employers.

In the engineering industry the main route for technician training continues to be through an EITB technician apprenticeship scheme, which includes periods of on and off-the-job training and study on a BTEC course. Cutbacks by companies in training budgets during the recession and a reduced demand for mechanical technicians and draughtsmen were the main reasons for a halving of intakes to such apprenticeship schemes to 3,000 in the five years to 1983. Although many IT companies in engineering find the EITB training scheme meets their needs, others do not and instead provide IT technicians with their own training programmes. This training usually comprises a mixture of in-company on-the-job training and further study at a local college or further education on a suitable BTEC course. There is evidence that many colleges are tailoring IT training courses to meet the specific needs of individual employers. A relatively new source of trainee technicians are people aged 18 plus, with GCE A levels, who are increasingly featuring in company recruitment plans. These trainees are often sponsored by the company on full-time BTEC diploma courses.

Many companies in the chemicals and services sectors are meeting their technical recruitment rather than through company training schemes. Inevitably these companies are drawing away people who have been trained and gained experience in electronics and computing companies. Many IT user companies who are not used to employing technicians find it difficult to identify their skill needs and are lagging behind in the development of training programmes for IT technicians. If shortages do develop, these companies will be compelled to 'grow more of their own'.

For those companies who have only recently adopted new technology, often the requirement is not for new, IT-experienced staff. Indeed, they are turning to existing employees to meet their needs, through retraining.

The adoption of microelectronics technology requires an increasingly flexible and adaptable workforce. In some cases extra staff recruitment (for addition, replacement or substitution) is not a viable option for industrial relations and other reasons. At technician level, firms' needs can often be met by upgrading existing staff or by 'bolting on' IT skills to existing (mechanically based) technicians. However, there is very little good information about the extent of current and planned retraining activities in the IT area. The Butcher report *Changing Technology—Changing Skills* recommended that special attention should be given to making retraining more attractive to existing employees. Recent work at IMS, *Retraining for Electronics*, carried out for NEDO, indicated that the requirement for retraining in electronics was often for fairly short periods of training in new skills. For many jobs, an introductory appreciation of electronics, a demystification of IT, or computer literacy is all that is required.

While a number of different retraining methods are being experimented with, distance learning for retraining or updating skills of existing employees is gaining in popularity. The MSC's Open Tech scheme has a number of pilot schemes underway in IT areas—for example, computer-aided design systems, microprocessor servicing.

Until recently the training of IT staff in the computer services sector and in data processing functions has been rather fragmented, in contrast to the long-established technician training systems in most of the engineering and manufacturing industry. There is little acceptance of national standards for the training of programmers and systems analysts across the computer services industry. A recent report from the MSC, *Training and Selection of Computer Personnel*, showed that 41 per cent of companies did not provide any computer training at all for their staff, and over half of them did not give 'trainees' any formal training. It also highlighted deficiencies in selection methods. However, there are signs that this is changing as the industry starts to respond to recognized deficiencies. More companies are now training their own staff and are relying less on recruiting skilled staff from the open market. There is still a long way to go, however, before national agreed standards become widely accepted.

Much of the MSC-sponsored training in computing skills is carried out through the training opportunities scheme (TOPS). Over 200 computing skills courses were planned in 1984, many in private companies, with some 3,400 unemployed adults attending. The MSC has recently reviewed the TOPS training, and they too are trying to improve standards and the quality of training given.

In reviewing the IT education and training scene, one particular feature is the poor representation of women among IT skilled staff at all levels, including technicians. In the engineering industry, only 2 per cent of technicians are women, and although this percentage has been increasing in recent years and is a little higher in electronics companies, their representation is still very poor. In 1983/84 in IT 15,000 BTEC awards in IT subjects, just 6 per cent were to women, and two-thirds of these were in computer studies. In the non-computing areas women represented 2 per cent of those receiving BTEC diploma and certificate awards. If women continue to be ignored in the expansion of IT, it will not be surprising to find further shortfalls. Several successful schemes have been run by the EITB, MSC and individual companies to encourage more girls into technician jobs, but a lot more needs to be done, especially in schools, to show what career opportunities are offered in IT to both women and men. The Butcher report also urges that more efforts should be made to interest girls and women in IT.

No one disputes that the spread of IT across all sectors of the economy will grow in the next few years, and all the signs are that it will bring with it an increasing demand for technicians qualified in IT skills. Whether existing education, training and re-training initiatives will be sufficient to meet this demand is less certain.

Helen Connor and Alan Gordon are research fellows at the Institute of Manpower Studies, based at the University of Sussex.

BOOKS

Bolts of lightning

Adam and Evolution
by Michael Pitman
Rider, Hutchinson, £9.95
ISBN 0 09 155 390 3

There seems to be no end to the debate about Darwinism and divinity. In the United States there has never been more than a minority acceptance of the idea of evolution; and so-called 'scientific creationism' is currently making great advances. Even in relatively godless Britain, there has been a noticeable resurgence of anti-evolutionary activity during the past few years. In the 1970s, there appeared new books and journals devoted to refuting evolution—particularly *human evolution*—and reinstating some form of supernatural creation. Now we have *Adam and Evolution*—'the liveliest introduction yet to a fully rational creationism'. Michael Pitman, however, is that rare creature among creationists—a trained biologist.

Pitman's thesis is as follows: 'micro-evolution'—genetic change by natural selection below (and to some extent) above the species level—is a proven process; but 'macro-evolution'—the extrapolation of this process to account for the appearance of the major groups of organisms—is an unproven and unscientific myth. Macro-evolution does not occur because of the existence in nature of essentially distinct 'types' of living things. A type is 'a cluster of forms or species' distinguished by a common ground-plan or design. Dogs and wolves are of the same type; but dogs and cats are different. This means that although dogs may be descended

from wolves, dogs and cats must have distinct creative origins. Man, as if we cannot guess, 'is a distinct type. He did not diverge from an evolutionary trunk: his tree grew straight up from its own roots'.

It is difficult to know how to respond to this thesis. Pitman's views are very close to those held by the First Director of the British Museum, Richard Owen. In the 1830s and 1840s Owen was Britain's foremost comparative anatomist; but he was worsted by Thomas Huxley in the Darwinian debates of the 1860s and his reputation suffered badly as a result. To resuscitate Owen's neo-platonic doctrine of 'archetypes' after 120 years of neglect, it might be thought that some quite powerful new arguments would be in order; alas, Pitman provides none. Far from setting out any coherent alternative to orthodox evolutionary theory, he contents himself with endless sniping at Darwinism along westerly familiar lines: can complex organic adaptations possibly have been the result of chance? they cannot (see Fred Hoyle and Chandra Wickramasinghe); can the fossil record provide evidence of transitions between 'types'? it cannot (see Colin Patterson); can the accumulation of random mutations produce the organization seen in the development of even the simplest animal? it cannot (see Arthur Koestler and Rupert Sheldrake); and so on.

Inevitably, with sources such as these, confusion abounds. Probability theory is misapplied to show that the natural origin of life is impossible; and thermodynamics is misinterpreted to show that the direction of evolution is 'unnatural'. From time to time readers are regaled with foolish questions: 'what drives a chemical to 'live', reincarnate, survive, improve its chances' (answer: nothing, but we see only those that have done so); 'Why, if man's brain was its present size fifty thousand years ago, did it take so long to evolve?' (answer: how long would it take you to invent fire, or iron, or the wheel?); and last but not least, 'what

sense is there in life?' (answer: well, its good question, but the answer does not depend on our view of the relationship between micro-evolution and macro-evolution).

Quite simply, *Adam and Evolution* is not serious science. Amid all the demands for answers and explanations from evolutionary biology, it is impossible to discover what Pitman really wishes to put in its place. Does he or does he not accept elementary theses such as: that the history of life on Earth is measured in thousands of millions of years; that different groups of organisms appear and disappear in the fossil record in an orderly and sequential fashion; and that this order of appearance coincides with the hierarchic groupings of a natural classification, thus permitting the reconstruction of phylogeny? If he does not accept one or all of these theses, he should both tell us why and inform us of what he already knows—yet there is always the chance of being the first to see a nova, a comet, or simply fresh whirls in the cloudbeats of Jupiter. This must be why, when so many sciences have retreated to inaccessible heights, astronomy still attracts a large and enthusiastic following of amateurs of all ages.

To be sure, it is mostly one of rediscovering for oneself what is already known—yet there is always the chance of being the first to see a nova, a comet, or simply fresh whirls in the cloudbeats of Jupiter. This must be why, when so many sciences have retreated to inaccessible heights, astronomy still attracts a large and enthusiastic following of amateurs of all ages.

Many of these are young people of school age, who would love to be able to study astronomy at O or A level and perhaps proceed to a university degree. This is where the appearance of Jerry Waxman's workbook highlights the discrepancies and inequalities between the British and American systems: although it is published by Cambridge University Press, it is written for the American market and is largely unsuited to the general British educational scene. But this is an indication of our system, not of the book.

Astronomy is founded on observation, and the object of Waxman's workbook is to provide, for the student, a set of practical exercises to supplement the factual material presented in astronomy textbooks—many excellent examples of which are in print. There is nothing, however, to compare with Waxman's work. As it is intended for beginning courses of

John Durant
John Durant is staff tutor in biological sciences in the department for external studies at the University of Oxford, and editor of 'Darwinism and Divinity: essays on evolution and religious belief', to be published by Blackwell.

A collection of articles on *More than the Parts: biology and politics* has been edited by Lynda Birke and Jonathan Silvertown and published by Pluto Press at £7.95.

Night sky

A Workbook for Astronomy
by Jerry Waxman
Cambridge University Press, £15.00
ISBN 0 521 25312 8

Astronomy is one of the few sciences that can be appreciated on many levels, from an untutored enjoyment of the night sky to the arcane heights of relativistic astrophysics. The stars are available to all, their patterns hardly changing in the course of human lifetime. Access to a telescope will multiply the pleasure.

To be sure, it is mostly one of rediscovering for oneself what is already known—yet there is always the chance of being the first to see a nova, a comet, or simply fresh whirls in the cloudbeats of Jupiter. This must be why, when so many sciences have retreated to inaccessible heights, astronomy still attracts a large and enthusiastic following of amateurs of all ages.

Many of these are young people of school age, who would love to be able to study astronomy at O or A level and perhaps proceed to a university degree. This is where the appearance of Jerry Waxman's workbook highlights the discrepancies and inequalities between the British and American systems: although it is published by Cambridge University Press, it is written for the American market and is largely unsuited to the general British educational scene. But this is an indication of our system, not of the book.

Astronomy is founded on observation, and the object of Waxman's workbook is to provide, for the student, a set of practical exercises to supplement the factual material presented in astronomy textbooks—many excellent examples of which are in print. There is nothing, however, to compare with Waxman's work. As it is intended for beginning courses of

astronomy in American colleges and universities, much of the book corresponds to sixth-form science level, but a few exercises might be tackled by O level candidates and others are appropriate to the first year of university. The author cross-references his material into four sections: laboratory, observational, classroom and planetarium exercises—this last section emphatically underlining the differences in resources available in the United States and the rest of the world.

The remaining 80 per cent presents a carefully chosen and clearly explained sequence of exercises based upon actual astronomical observations and measurements made by the student, and on classroom analysis of photographs, and spectra obtained at professional observatories. Most of the familiar chapters of astronomical textbooks find their practical realization here: the celestial sphere, time, optics of the telescope, Sun, Moon and planets. The stars—as would be expected—provide the bulk of the exercises, with especially good explanations on stellar photography, spectra, binary and variable stars, and Hertzsprung-Russell diagram. The exercises are concluded with a section on galaxies and cosmology, and there are some valuable appendices.

Ideally suited to the American educational system, Waxman's book will surely inspire many of its students with a desire to continue astronomical studies. Most will not have this opportunity, yet all will have a far greater astronomical knowledge than the vast majority of students in Britain, where astronomy at school usually means little more than self-teaching for an optional O level. A few universities teach astronomy, but these will have developed their own instructional exercises. I therefore find myself in the anomalous position of thoroughly approving and recommending an excellent work for which I can see practically no market in this country.

A. A. Mills
A. A. Mills is lecturer in astronomy at the University of Leicester.

Active sites

Enzyme Structure and Mechanism
(second edition)
by Alan Persh
Freeman, £28.95 and £14.95
ISBN 0 7167 1614 3 and 1615 1

Both chemists and biochemists are interested in enzymes, but they tend to write very different sorts of book about them. Chemists often concentrate on what biochemists regard as the least interesting aspects of reaction mechanisms to the exclusion of everything else (and doubtless they have equally rude things to say about the books that biochemists write). Persh is rather unusual in having a deep understanding of reaction mechanisms coupled with a real appreciation of what the biologically interesting problems are, and his book reflects this very well.

Persh is not among those who believe that enzymology as a science is finished, and that everything that is interesting to do has been done. On the contrary, he believes that 'we are now entering a new golden age of enzymology' in which recombinant DNA technology will bring about a transformation of the subject comparable with the effect of x-ray crystallography 20 years ago. As he points out, I. B. S. Haldane's classic 1930 book on enzymes was written at a time when next to nothing was known about the structure of even the chemical nature of enzymes, even much had been discovered about how they behaved. (The history of genetics provides a parallel, as a great deal was learned about how genes behave before any of the detailed three-dimensional structures of numerous enzymes, but it is beginning to be possible to make specific changes to these structures, thereby revealing much about the contributions of the various structural elements to their total behaviour and function. Many aspects of enzyme catalysis that were purely speculative a few years ago are becoming accessible to rigorous experimental testing.)

Many biochemists will be familiar with the highly successful first edition of Persh's book, published in 1977. Although much can be recognized



Reaping, from a 15th-century treatise; in *The Flowering of the Middle Ages*, edited by Joan Evans (Thames & Hudson, £18.00).

from the first edition, the text is revised throughout, and many passages that might appear at first sight to be unchanged prove on more detailed comparison to have been improved. There are three new chapters: one, not surprisingly, is concerned with protein engineering, and includes such current topics as site-specific mutagenesis in order to alter particular binding sites on the enzymes they produce. Another detailed chapter on the stereochemistry of enzyme catalysis, bringing together what have been previously isolated references, and developing the subject to take account of the great advances that have been made during the past decade. The third describes, more briefly, the design and use of inhibitors of enzymes directed at the active sites of enzymes.

In general, this is an excellent book that deserves to have even greater success than its predecessor. Persh writes with great vigour and clarity, and conveys his own excitement with

his subject. Naturally, there are topics that do not interest him very much but which must be included; and on these, most notably on steady-state enzyme kinetics, he is not as good as on others. Even here, however, he has stimulating and important things to say. The chapter on regulation of enzymes is excellent in relation to the enzymes in isolation, but less satisfactory when considering them as components of metabolic pathways; concepts such as allosteric regulation are not mentioned, and during the past decade, such as editing mechanisms in the genetic apparatus, he is unsurpassed.

Athel Cornish-Bowden
Athel Cornish-Bowden is lecturer in biochemistry at the University of Birmingham.

Basic exercises

Algebra, Geometry and Trigonometry
in Science, Engineering and
Mathematics
by M. V. Sweet
Ellis Horwood: Wiley,
£25.00 and £14.50
ISBN 0 85312 461 2 and 777 8

Teaching mathematics to science and engineering students can be an unenviable experience. First, there are the mechanics, saying please will you do partial differential equations first, and principal axes before Christmas. Then there is the tutor who (you discover later) is turning his simple trouble-shooting hour with your weakest bunch of students into a seminar on logic, foundations and philosophy. And finally there are young students, a hundred eager young minds whose command of mathematical knowledge could be written on one side of a postcard, with a fell pen.

So what do you do? You could teach them an A-level course; all the mathematics they should have learned in school, with lots of practice in computation. This might do them a lot of good but will not make you friends with your 'brightening' colleagues with your 'background information. Either way lies disaster.

What you need, you decide, is a really good textbook, a well organized textbook, covering not only the course numbers, and stuffed full of worked examples and exercises, with correct solutions, at every level from the insidiously easy to the conceptually and computationally testing. The text should be clear; proofs should be either rigorous, without being over fussy, or sketched (and admitted as such), or omitted where appropriate; and notation and terminology should be standard.

Visit to the library or bookshop will uncover a vast selection of such books. Those not wholly unsuitable are mostly American calculus texts, and you will probably choose the least offensive rather than the most appealing. You may conclude that you could

do worse than knock your own notes into shape, tack on all the exercises and examination questions you have ever set, and find a publisher. This is what M. V. Sweet seems to have done, and it is showing to us all. Sweet's first mistake was to isolate the calculus from the other topics in her course, and write a book only on the latter, thus ensuring that her students will need to buy two books. They won't: students never buy two books. Her book does contain a number of (very easy) exercises, but it could find little favour in its favour. There is a chapter each on trigonometry, complex numbers, permutations and combinations, series, and vectors, and four chapters on coordinate geometry. The remaining half of the book is about manipulative algebra of one sort or another, ranging from the remainder theorem and partial fractions to simultaneous equations and eigenvalues.

The book started to annoy me right from the beginning, where we are told that the conjugate (my italics) of the sum of two irrational square roots is their difference. What, either way round? And what about negating both of them? Hasn't she heard of Galois theory? From the cavalier treatment on the next few pages, I would guess not; and the resulting ambiguity is quite unacceptable. Much of the book is sloppy, or inconsistent, or just plain silly. The degree of a polynomial is defined so that a quadratic is a special sort of cubic with zero leading term. There are four mutually exclusive types of series: convergent, divergent, and finitely and infinitely oscillating; we should be grateful that no attempt is made to define more than one of them.

The pace is snail-like; and everything is in the wrong order: complex numbers, vectors, conics, and the binomial theorem are all needed earlier than the chapters in which they appear. I suppose someone somewhere might want to read this book for exercises, but I can think of no other use for it.

J. R. Silvester
J. R. Silvester is lecturer in mathematics at King's College, London.

A second edition of Edward M. Purcell's *Electricity and Magnetism*, volume two in the Berkeley physics course, has been published by McGraw-Hill at £29.75.

SPCK

New Library
of
Pastoral Care
Paid to Care?
Alastair Campbell

Alastair Campbell examines the moral ambiguities inherent in the "professional" approach to pastoral care, and provides a possible answer to the question: 'Is it possible to talk about expertise in Christian love?' £3.95

Meaning in Madness John Foskett

Using material from case studies, John Foskett provides a commentary which clarifies the work of the pastor with the mentally ill, and shows the interaction between theology and psychology. A vigorous and forceful contribution to the growing debate on the proper relationship between religion and medicine. Dr Anthony Clare

£3.95

Other titles in the
New Library
of Pastoral Care include:

Letting Go
Caring for the Dying
and Bereaved
Ian Ainsworth Smith
& Peter Speck
Invisible Barriers
Pastoral Care with Physically
Disabled People
Jessie Van Dongen-Garrad
Letting it Go
Pastoral Care with the
Mentally Sick
John Foskett
The Priestlike Task
Wesley Carr
The Kindness that Kills
Digby Anderson
For details of other SPCK
publications write to:
SPCK, Holy Trinity Church,
Marylebone Road,
London NW1 4DU.

SPCK

BOOKS

SOCIAL POLICY

Among the babble of voices

Theories of Welfare
by Anthony Forder, Terry Cuslin,
Geoffrey Ponton and Sandra Walklate
Routledge & Kegan Paul, £6.95
ISBN 0 7100 9625 9

Theories of welfare speak with different voices. The precise, clipped tone of microeconomics contrasts with the loud and hazy generalizations of functionalist sociology or the revolutionary rhetoric of Marxist theory. All three contrast with the boozey argot of social interactionism. And the cool accents of philosophy seem to put everything in its place. In this book Anthony Forder and his colleagues seek to reduce this babble of voices to a civilized conversation in which we can all hear what each theory has to say about the role and nature of the welfare state, and understand what each is, and is not, asserting.

The scope of the coverage is broad: neoclassical economics; macroeconomic theory; Marx and Marxism; functionalism; pluralist and elitist theories of politics; social interactionism; and philosophical accounts of social justice. The account of these theories is preceded by a review of problems in the philosophy of the social sciences and rounded off by an attempt to apply

them to the problem of explaining the persistence of poverty in the midst of an affluent society. Of competitive market theory, with all its imperfections, also needs to be accounted for in terms of political power, and it is in this context that Marxist political economy comes into its own. In other words, the theories discussed differ partly because they are about different things, Forder argues, and it is only when prescriptions are issued for policy that theories genuinely begin to conflict.

There is, surely, something more than a little odd in this claim. If different theories provide complementary parts of an overall system of explanation of poverty, then it would seem logical to take into account all the aspects of the problem when making recommendations about its solution. So, if no amount of equalizing the distribution of human capital will overcome the inequalities of power that are necessarily built into the system of capitalist economic relations, it seems that neoclassical theory cannot provide a satisfactory basis for policy recommendations. Nor can it be that the three simply subsume another, since their key ideas may be inconsistent. The theory of wage differentials in neoclassical economics is not simply a special case of power relations in Marxist theory, since the former allows no place for the concept of surplus value which, on the account presented in this book, is crucial to the latter. Some procedure is needed for enabling us to make a rational choice between competing theories. We cannot listen to everyone's voice and, as with the Quakers, take the "sense of the meeting". Discard theories produce little harmony - and accounts of the welfare state should recognize this.

Albert Weale

Dr Weale is assistant director of the
Institute for Research in the Social
Sciences at the University of York.

Battersea families

by Sandra Walklate
Tavistock, £6.95
ISBN 0 422 78400 1

Sandra Walklate and her colleagues believed the could overcome the difficulties of anthropology in a cold climate by interviewing eight households, four white and four black, in a South London district and setting the results in the context of some earlier research they had done in the same area. There were four interviews with each household - fewer, it may be noted, than the eight to 19 visits to each of 20 families for the classic Elizabeth Bott study of family and social networks.

The place was an officially designated Housing Action Area in Battersea, comprising no more than seven or eight streets. The first stage of the project had included a basic survey with around 400 people, from whom the eight were selected for recall. The criteria for inclusion were that the household had lived in the neighbourhood for at least five years, had relatives living elsewhere in South London, had children under 16 at home, had a weekly-paid skilled or semi-skilled job and had during the previous 12 months gone through a "normal crisis" - the examples given include a birth, death and redundancy.

The researchers shared something of the approach adopted by Ray Pahl in his recent study of *Divisions of Labour*, namely a desire to understand how households manage to earn their livelihood and organize their lives, and this interest was reflected in the design of the interviews. Three special topics were used: a form of time budget (with "time charts"), a detailed job history record for each adult and a "network map", indicating kin and non-kin living at different physical and affective distances and identifying those with whom there was some reserve of discomfort.

The resulting case histories, presented in pairs, offer several useful insights into local social patterns. One example is the continuing role, at least for some, of the localized extended family group. Although they live in different houses, many of the resources are pooled in a single household system. She reports another woman explaining how her mother had helped out when the husband was made redundant: "She wouldn't say anything, she'd just creep in with a couple of bags of shopping. One day, when I was out, she'd say, 'I've got a man had gone, I'd got £5. Very sneaky'."

The local neighbourhood, too, seemed to remain important, acting as an informal source of help in difficulty and of information about jobs. A third example is the attitude of whites to their black neighbours. The main distinction made by local residents about each other was apparently not in terms of skin colour but of length of residence. If you were black or white and had lived in the district for a few years you were accepted as a "local", with the rights that conferred; newcomers, white or black, were regarded as outsiders. It is of course not clear whether these three points would apply as much in re-developed areas as in this one where the existing houses had been preserved.

In trying to look more closely at the household variations which were the main focus of the study, Walklate draws attention to the differences between households in what she calls their styles. They differ, both in terms of the kind and quantity of resources they have, and in the way they use/work/convert these resources into livelihood. Some households are characteristically committed to and dependent on family and ethnic communities or their breadwinner's place of work. Some households, or more importantly the resource-keepers of those households, seem to prefer to continue doing what they are doing, while others regularly decide on change. A fourth dimension of style is planning or not planning.

The key task, obviously, was to try to explain why households differed in these ways. The problem was that interviews with just eight households could not be taken to suggest the answers while the project lacked the full ethnographic detail needed for different modes of research, and the dilemma is reflected in the thinness of the conclusions. The truth is that case studies are of only limited interest in themselves and that, with so few to draw on, a study like this was almost bound to disappoint.

Peter Willmott

Dr Willmott is a social policy lecturer at the University of York.

Counting the cost

The Economics of Social Care
by Martin Knapp
Macmillan, £20.00 and £7.95
ISBN 0 333 28938 2 and 28939 0

This book is about the contribution that economic analysis can make to decisions about "social care". For Knapp, "social care" is roughly synonymous with "personal social services"; his particular concern is with the care of the elderly. Knapp makes his approach clear at the outset, saying that his book is "about the discipline of economics and not the topic of the same name"; echoing Tony Culyer, he says that it is characterized "not at all by what economists study but by the way they study it". No prior knowledge of economics is assumed. Essentially,

"It is more than a guide. It is a modern classic." So writes Lord Scarman in his introduction to the fifth edition of Tony Lyne's *Penguin Guide to Supplementary Benefits*, published last

the book is an introductory guide to the skills of Knapp's trade; it might have been titled "How to be a social care economist". Knapp's aim, it seems, is to show his readers how to think like economists when considering social care issues. In this he succeeds admirably.

Knapp explains how an economist would set about measuring the costs and outputs of social care, emphasizing the importance of looking at opportunity rather than accounting costs and at final rather than intermediate outputs. He reviews the arguments for and against the use of consumer charges, reminding us that on money or queues or eligibility rules, is inevitable in the face of scarce resources. He provides a basic introduction to cost-effectiveness and cost-benefit analysis, arguing the practical value of these techniques for social care decision-makers. Throughout the exposition is clear and straightforward; a sensible balance is maintained between theory and application; and Knapp is scrupulously fair when dealing with issues that are at the centre of political controversy.

In his final chapters Knapp surveys recent economic research into the care of the elderly in Britain. First he discusses a number of cost-benefit studies of the relative merits of informal, domiciliary and residential care. Then he discusses some studies of variations in the costs of old people's homes between different local authorities. Finally he looks at studies of the relative cost-effectiveness of the public and private sectors in supplying residential care. Knapp tends to be more interested in how these studies were carried out than in what findings emerged. This is particularly noticeable in the chapter on cost-benefit analysis. The reader is told a lot about the methodological differences between the various studies, but their findings are presented in bald summaries, with little attempt to draw general conclusions for public policy. On the highly-charged issue of the growth of private sector residential care, Knapp sits firmly on the fence, reporting that studies of the relative cost-effectiveness of the public and private sectors have produced conflicting results. He can only offer the limeworn conclusion that more research is needed.

I can sympathize with Knapp's reservation to Richard Titmuss's charge (quoted at the head of the first chapter) that economists act as though they own a hot line to God; but I couldn't help wishing he would commit himself a little more. I take it that he wants to do more than describe the tools of his trade; he hopes to persuade decision-makers and commentators to take economic analysis seriously. If we economists are to do this we must be able to show that our analysis yields significant conclusions.

Robert Sugden

Robert Sugden is professor of economics at the University of East Anglia.

BOOKS

SOCIAL POLICY

Patch work

Decentralising Social Services: a model
for change
by Roger Hadley, Peter Dale and
Patrick Sills

Bodford Square Press, £5.95
ISBN 0 7199 1124 9
When Social Services are Local: the
Normanton experience
by Roger Hadley and Morag McGrath
Allen & Unwin, £18.00 and £6.95
ISBN 0 04 361054 4 and 361055 2

When social services departments were created in the early 1970s they arranged for social work for people living in their own homes to be provided by social workers who were grouped into teams. Each team covered a population averaging between 30,000 and 50,000 and dealt with all kinds of problems affecting families, children, adolescents and elderly people. Other services such as home helps and meals-on-wheels were usually provided by another section of the department outside of the "generic area team". Recently, this form of organization has been criticized from two sides: on the one hand for failing to allow workers to develop specialist knowledge and skills, and on the other because workers never gain sufficient knowledge of the geographical area they serve to allow them to engage citizens in a partnership to prevent, ameliorate or solve social problems.

Paced with such criticism, social services have recently begun to move towards "patch" and/or specialized teams. A patch team ideally consists of various kinds of staff - social workers, social work assistants, home help organizers, home helps and street wardens, for example, meeting the needs of all citizens up to a population of about 10,000. Some also argue that day and residential care should be conceived on the same scale and integrated in the patch team. This method of delivering social services, it is claimed, is more likely to ensure that citizens know what services are available and how to get them and also that problems come to the attention of workers at an early stage. The workers know the resources as well as the problems of their patch and can mobilize these on behalf of users.

The alternative is to deploy specialist teams - for example, to provide services for elderly or handicapped people or children and families or for a more closely defined group such as those with a mental handicap. Like patch teams, specialist teams also cover a geographical area but this is likely to contain a larger population - nearer to 50,000 than 10,000. Such teams vary but usually exclude staff



A home help on her daily round, as part of a patch team in East Sussex

from residential and day care from their membership. They are also less likely than a patch team to include home helps and street wardens; such staff being provided and managed by a separate sector of the department.

Organizing services in this way provides, it is said, the level of specialist knowledge and skill which clients require. By specializing, workers avoid the perils of becoming "jacks of all trades" and the feeling of bombardment which can lead to burn-out. The debate between adherents of the two schools of thought would have many issues to address at an organizational and practice level but it is complicated further by the fact that the adherents of patch claim for it what they see as a superior ideological base. Led by Professor Hadley, it is based on a patch organization is based upon a larger generic teams or specialist teams rely upon a client-centred approach. Like many phrases containing the good word "community", the idea of a community-centred approach is not entirely clear and is interpreted differently in its various manifestations. What seems central to the ideology is that users of social services are seen as members of a community which has resources as well as problems and where the role of the social services is to promote community participation in problem-solving and

the prevention of problems. Client-focused teams on the other hand, see themselves as responsible for helping individuals, whom they call clients rather than users, to deal with their social problems.

In reality things are not so clear cut. Taking the country as a whole, there are many fewer patch teams than specialist or generic ones and there is little consistency within authorities. Where there are patch teams, they are usually one form of organization among others. Only one authority - East Sussex - the subject of *Decentralising Social Services*, has "gone patch" throughout, although it is said that Humberstone intends to do so. About patch and both written in part by the arch-priest of the movement, Roger Hadley, are very different. *Decentralising Social Services* is an account of some aspects of the training programme adopted by East Sussex to assist its staff to change their way of working to what are interchangeably called patch methods, community social work or community-centred methods. This was particularly necessary since, in East Sussex, the decision to "go patch" was made by committee and management and not, as elsewhere, by teams themselves. The decision was made to train by requiring 11 teams selected from the total of 35, to undertake projects. The introduction provides the educa-

tional rationale for the approach and the bulk of the book consists of accounts, and what are called evaluations, of these 11 projects, written by staff who carried them out with additional comments by the editors, who were consultants to the projects.

The projects vary from pieces of work which any social services team might be expected to undertake irrespective of whether they saw themselves as imbued with a patch philosophy, to projects which attempted to involve members of local communities in new forms of partnership with the social services. The general level of satisfaction among the writers is very high and reading these accounts one can have little doubt that the authors at least benefited. Beyond that one cannot go, since the so-called evaluation does not allow for scrutiny. This, however, may not matter. There is sufficient evidence from elsewhere to allow us to take on trust the fact that project work of this kind is likely to provide a powerful way of changing working practices for those actually engaged in the project. What is disappointing however, is that the original plan was that the experience of the teams selected for projects would somehow spread over into the majority of teams who were not involved. The book does not give much information as to whether this happened, and the lack is important, since such a spread is, on past evidence of the water-tight nature of teams, inherently unlikely. It is thus impossible to decide whether or not the East Sussex area development programme was an important way of changing attitudes and behaviour in a total staff group. Given the changes required in all social service departments by new legislation, such as the Data Protection Act, such knowledge would have been pertinent and useful.

The second book, *When Social Services are Local*, is an account of a research study of one patch organized team, the now famous Normanton in Wakefield. M.D. Hadley and McGrath studied this team, which consisted of three patch teams, and compared it, as far as they could (and as they explain, this was not far enough to be able to be certain of the comparisons) with a neighbouring client-centred team.

The research was careful and thorough and there is no indication that Professor Hadley's much publicized support for patch obscured his research methods or his analysis. Nevertheless, the research provides few answers which can be generalized to other areas, although it suggests that the patch teams met more users than the client-based team, dealt with some referrals more quickly, and that more citizens had heard of the team, and that users were satisfied. The strength of the book lies in the accounts it gives of patch work. We know a good bit more about what it is like to work on a patch even if the questions about service delivery remain still a matter of ideology.

Phyllida Parsloe

Phyllida Parsloe is professor of social work at the University of Bristol.

Basil Blackwell

Social Control and the State

Comparative and Historical Essays
Edited by STANLEY COHEN
and ANDREW SCULL

Much of the most exciting recent work in both history and sociology has concentrated on a perennial and provoking issue: the relationship between the modern state and the apparatus of social control. This book provides an impressive survey of the ways in which society maintains conformity and responds to deviance. 350 pages, hardback £19.50 (0 85320 615 2) paperback £6.95 (0 631 14261 4)

The State

Authority and Autonomy
BILL JORDAN

In this remarkable work of social and political theory, Bill Jordan evaluates both the theory of the state and its workings and failings in western, communist and developing countries. (June) 376 pages, £19.50 (0 631 14273 8)

Paying for Welfare

HOWARD GLENNERSTER

Many believe that the welfare state is in the midst of a financial crisis, and major changes are taking place in the ways in which local services are funded. This book presents, for the first time, a wide-ranging but concise account of the financing of the social services in Britain today. It examines the various ways in which they could theoretically be financed, as well as the major sources of funds and their limits. 288 pages, hardback £19.50 (0 631 13971 0) paperback £7.50 (0 631 13972 9)

The Future of Welfare

Edited by RUDOLF KLEIN
and MICHAEL O'HIGGINS

This book challenges the rhetoric of 'crisis' in relation to the British Welfare State, and examines conventional assumptions about the constraints and pressures on Britain's social policy makers. It brings together the views of a variety of social policy experts - from different perspectives, and different countries. (August) 288 pages, hardback £17.50 (0 631 14203 7) paperback £6.50 (0 631 14204 2)

Negotiating Help

Social Work in the Criminal
Justice System
PETER RAYNOR

In this wide-ranging appraisal, Peter Raynor argues that social workers should 'help' rather than 'treat' offenders and suggests ways of working that are compatible with a humane and acceptable criminal justice system. The Practice of Social Work (August) 256 pages, hardback £16.50 (0 631 13731 9) paperback £7.50 (0 631 13732 7)

Children's Homes

DAVID BERRIDGE

This book is the first in recent years to set out exactly what children's homes do: to describe the services they offer, and the quality of the care they give. To write it, the author lived in twenty homes for a given period, and the book thus provides the only thorough investigation into a crucial part of our welfare system. (June) 144 pages, hardback £16.50 (0 631 14136 7) paperback £7.50 (0 631 14137 5)

Finding children for homes

Adoption: essays in social policy law
and sociology
edited by Philip Bean
Tavistock, £18.50
ISBN 0 422 78410 9

Between 1968 and 1982, the number of adoption orders made in England and Wales dropped from almost 25,000 to 10,240. The decline - due partly to the greater availability of contraceptives and abortion - has led adoption organizations to seek children in three directions all of which are ably covered in this volume of essays.

First, campaigners have successfully brought about legislative changes which facilitate adoption. A third of the book is devoted to legal matters including discussion of how recent law has widened the grounds for dispensing with the consent of natural mothers, increased the power of foster parents to apply to adopt their foster children, and made possible the provi-

sion of financial subsidies to adopters. Second, whereas adoption traditionally has concerned babies, child care agencies have now sought out older children, particularly those who have spent some years in the care of local authorities. However, Miles Haggood's contribution reveals that the number of adoption orders on children aged five and over is not showing the expected escalation. It appears that either the estimates about the numbers who could be adopted have been exaggerated or that many long-term foster parents prefer to continue to share the care with local authority social services departments.

Third, the attempt has been made to find adopters for children with "special needs". Black children are in this category, and the practice of placing them with white substitute parents is currently a subject of criticism by some black social workers. To his credit, the editor Philip Bean, does not shirk the task of seeking children in three directions all of which are ably covered in this volume of essays.

First, campaigners have successfully brought about legislative changes which facilitate adoption. A third of the book is devoted to legal matters including discussion of how recent law has widened the grounds for dispensing with the consent of natural mothers, increased the power of foster parents to apply to adopt their foster children, and made possible the provi-

sion of financial subsidies to adopters. Second, whereas adoption traditionally has concerned babies, child care agencies have now sought out older children, particularly those who have spent some years in the care of local authorities. However, Miles Haggood's contribution reveals that the number of adoption orders on children aged five and over is not showing the expected escalation. It appears that either the estimates about the numbers who could be adopted have been exaggerated or that many long-term foster parents prefer to continue to share the care with local authority social services departments.

Third, the attempt has been made to find adopters for children with "special needs". Black children are in this category, and the practice of placing them with white substitute parents is currently a subject of criticism by some black social workers. To his credit, the editor Philip Bean, does not shirk the task of seeking children in three directions all of which are ably covered in this volume of essays.

First, campaigners have successfully brought about legislative changes which facilitate adoption. A third of the book is devoted to legal matters including discussion of how recent law has widened the grounds for dispensing with the consent of natural mothers, increased the power of foster parents to apply to adopt their foster children, and made possible the provi-

sion of financial subsidies to adopters. Second, whereas adoption traditionally has concerned babies, child care agencies have now sought out older children, particularly those who have spent some years in the care of local authorities. However, Miles Haggood's contribution reveals that the number of adoption orders on children aged five and over is not showing the expected escalation. It appears that either the estimates about the numbers who could be adopted have been exaggerated or that many long-term foster parents prefer to continue to share the care with local authority social services departments.

Third, the attempt has been made to find adopters for children with "special needs". Black children are in this category, and the practice of placing them with white substitute parents is currently a subject of criticism by some black social workers. To his credit, the editor Philip Bean, does not shirk the task of seeking children in three directions all of which are ably covered in this volume of essays.

First, campaigners have successfully brought about legislative changes which facilitate adoption. A third of the book is devoted to legal matters including discussion of how recent law has widened the grounds for dispensing with the consent of natural mothers, increased the power of foster parents to apply to adopt their foster children, and made possible the provi-

ANNOUNCING A NEW JOURNAL

JOURNAL OF EDUCATION POLICY

First Issue January 1986

The journal will be concerned with issues in educational policy and the politics of education, particularly in Britain, the rest of Europe and the USA, but will also seek to monitor developments in the rest of the world. It will aim to analyse and comment upon current educational developments as well as providing a forum for a wider historical and comparative context for the examination of policy. Policy issues at international, national, local and institutional levels will be addressed.

Annual Subscription £36 Special Individual rate £18

CALL FOR PAPERS

Dr Ivor Goodson
The Schools Unit, School of European Studies, Arts B,
The University of Sussex, Brighton BN1 9QN
Dr Stephen Ball
Faculty of Education, King's College, Strand, London WC2 2LS

WRITE NOW FOR YOUR FREE SAMPLE COPY ON PUBLICATION TO



Taylor & Francis

RANKINE ROAD, Basingstoke, Hampshire RG24 0PR

ASSESSING HEALTH CARE

A study in organizational evaluation
by G. Smith and C. Cantley
Health care services involve doctors, nurses, psychiatrists, social workers, patients' relatives etc; each group has different ideas of what 'successful' treatment means.

This book argues that existing methods of assessing health care services do not take all these different groups and their objectives into account. The authors propose a radically new approach to evaluating the effectiveness of health and welfare services — pluralistic evaluation. The value of this approach is clearly demonstrated through a detailed examination of a new day hospital for the elderly mentally ill.

May 1985 0335 15072 1, Cassed C 22.50

Open University Press, CLUE Ltd.
15, Bedford Way, London, WC1E 6BT
0203 516111 (Mon-Fri 9.30-12.30)

New approaches to economic life
Economic restructuring, unemployment and the social division of labour
edited by Bryan Roberts, Ruth Finnegan and Duncan Gallie

An up-to-date overview of recent theory and research on the social implications of economic change. Essential reading for anyone working with the ESRC's 'economic life' initiative.
HB £40.00 624pp PB £13.95

The economic ideal in British government
Calculating costs and benefits in the 1970s
Phyllis Colvin

A study of the new efforts to place economic concepts at the centre of the decision-making process in government.
HB £22.50 256pp

manchester
UNIVERSITY PRESS

Social Policy Journals

Howard Journal of Criminal Justice
Edited by A.K. BOTTOMLEY, K. PEASE and D. JENKINS

Published for The Howard League
February, May, August, November
£22.50 (UK) £25.00 (overseas)

Journal of Law and Society
Edited by P.A. THOMAS

March, July, November
£17.00 (UK) £20.00 (overseas)

Law and Policy
Edited by J.M. THOMAS

Published for The Society for Law and Social Policy
January, April, July, October
£16.00 (UK) £20.00 (overseas)

Public Administration
Honorary Editors: J.M. LEE and C. POLITT

Published for the Royal Institute of Public Administration
February, May, September, December
£20.00 (UK) £25.00 (overseas)

Social Policy and Administration
Edited by R.A.S. LEAPER

February, June, October
£16.50 (UK) £20.00 (overseas)

Instructions re: application, orders and sample copy requests in Journals Department, Basil Blackwell, 108 Cowley Road, Oxford OX4 1JF.

BOOKS

SOCIAL POLICY

Different attitudes to age

Ages in Conflict: a cross-cultural perspective on inequality between old and young
by Nancy Foner
Columbia University Press, \$49.00 and \$17.50
ISBN 0231 05696 6 and 05697 4

Conventionally, the elderly in advanced industrial societies are seen as a homogeneous group with specific, age-related problems. Yet closer examination shows this not to be the case. The over-65s in fact contain a wide variety of social types: the middle-class executive, sliding gently into a suburban retirement of rose-growing, golf and desperate boredom experiences a very different old age to the hypothesized widow living on supplementary benefit or a Picasso or Pablo Casals still in the full flood of joyous creativity. The sheer variety of these experiences may make them well nigh impossible to quantify, but, nevertheless, they ought to be incorporated into any accurate portrait of old age. It is only to dispel the simplistic stereotypes that contribute to ageism among the non-elderly.

One aspect of this superficial 'common experience' picture of the elderly is the notion that age is necessarily the basis of structured inequality and social stratification. It is a view that has been rather encouraged by general modernization theories of ageing, which suggest that with the transition to late industrial capitalism the elderly are relegated to progressively worse positions in the social hierarchy. By adopting the anthropological approach, Nancy Foner has revealed the complex and varied nature of age-related inequalities across several cultures which have yet to experience full industrialization, and thus she is able both to outline the varieties of experience in the ageing process and to test the modernization thesis.

The picture is a complex one. Foner points out that definitions of old age have varied widely in non-industrial societies — for example, grey hair, wrinkled skin, grandparenthood, menopause, toothlessness or inability to perform specific tasks; and, more importantly, the status of the elderly has also varied, from veneration and dedication down to contempt and cruel neglect. In some societies, the elderly have exercised immense authority. For example, among the Sambar pastoral nomads of northern Kenya there was a powerful gerontocracy in which older men maintained a repressive regime to protect their privileges and exclude young bachelors, controlling tribal and family affairs and — much to the disgust of the young men — taking additional wives as they grow older. Interestingly, Foner shows that in many non-industrial

societies old age has enhanced the status of women, offering them increased freedom, influence and prestige; though generally excluded from political life, they may nevertheless exert considerable influence through the politics of the household and enjoy venerated status as sources of knowledge on matters relating to sex and childbirth. Elderly women may also be active agents in the perpetuation of social customs that keep young women subordinate to men.

But many non-industrial societies have exerted strong formal or informal penalties against their old. Foner provides many such examples: in County Clare in Ireland, farms would be turned over to a son when the father passed his seventieth year. Among the Luave tribe of Central Africa, old women often found themselves accused of witchcraft — especially if they were forced by economic vulnerability to return to live with their families, and hence resented the cranky and over-demanding grandmother was a well-known hazard in Kikuyu society. Sometimes, these discriminations were skillfully reversed by the elderly (among the Kpelle tribe, old women pretended to be witches in order to intimidate the young into providing them with food), or mediated by formalized social customs which encouraged the physical segregation of generations (such as among the Nays of Central Kerala before British rule, where a young male was forbidden to touch his mother's brother).

In testing the modernization thesis of ageing, Foner demonstrates how economic change in non-industrial societies (most often brought about by colonialism) resulted in changed social relations which weakened the traditional authority of the elderly. The growth of a cash-crop economy or the

development of a mining industry may offer to the young and healthy new wage-earning opportunities while displacing the elderly of land; the ritual dominance of old leaders may be threatened by the spread of Christianity or democratic political ideologies.

It is clear from Foner's study, therefore, that age-related conflicts in non-industrial societies have been highly complex and that it is correct to be sceptical about idyllic myths of a golden age of senescence in the dawn of the industrial past. The approach adopted in this book is original and imaginative, but its message could probably have been presented more briefly, and at a lower price: in attempting to do justice to these complex social relations and customs Foner tends to lapse into rather tortuous prose, evidently finding generalization difficult where an example from one society is flatly contradicted by the opposite practice in another. This, of course, is always a problem in qualitative measurements where impressionistic evidence has to be used; but Foner's account would undoubtedly have been strengthened had she adopted a more concise style and made reference to a wider range of case-studies. Again, there needs to be considered the question of whether today's third world countries are strictly comparable to pre-industrial Britain, given the sharp differences in language, social structure and culture.

Nevertheless, this book is a useful reminder that in all societies old age is a diverse and complex experience.

John Macnicol
John Macnicol is lecturer in social policy at Bedford College, London.



An Eskimo grandfather teaching his grandchild the cat's cradle, a picture from Joseph Campbell's *The Way of Zen* (Penguin, £35.00).

The place of theory

Pensions Policy in Britain: a socialist analysis
by Eric Shragge
Routledge & Kegan Paul, £14.95
ISBN 071009842 1

Lone Mothers, Paid Work and Social Security: a study of the tapered earnings disregard
by Albert Weale, Jonathan Bradshaw, Alan Maynard and David Pichaud
Bedford Square Press, £7.50
ISBN 071991131 1

With the results of the Fowler reviews of social security expected shortly, these books should be of topical interest to a wider audience than students of social policy. However, those coming fresh to the field may be bewildered by the contrast between the two completely different forms of policy analysis which they exemplify. Both books illustrate the strengths and weaknesses of contemporary social administration.

Eric Shragge's account is a good example of an important recent trend in social policy which has reacted against the longstanding atheoretical stance of the subject by attempting to develop its theoretical base. Although in this instance the attempt does not

succeed. His ostensible subject is the formulation of pension policy during the period 1940-1975, which he analyses in the context of developments in postwar British capitalism. In fact so much of the book is taken up by this discussion of context that the reader may be forgiven for occasionally thinking that pensions are incidental to his interest. The author adopts a 'libertarian anti-state, socialist orientation' and proceeds to describe the welfare state as a 'Keynesian/Beveridge mode of domination' and pensions as 'relations of domination'. Behind such unnecessary and laboured attempts at theorizing and the frustrating habit of informing the reader at regular intervals what has gone before and what is coming up next, there are some measured and illuminating passages on the development of pension policy which are worthy of wide attention.

The book by Albert Weale and his colleagues is an example of just the sort of pragmatic social policy analysis that presumably Shragge and others have reacted against. There is no explicit theoretical foundation, no critical commentary on policy and no attempt to explain the poverty of lone parents. These were not the intentions of the book, which instead reports the results of research conducted into the operation of the 'tapered earnings disregard' (affectionately known as TED). It was introduced in 1980 to encourage single parents living on supplementary benefit to take more self-supporting by enabling them to keep a slightly higher proportion of their earnings if they went out to work. Those wanting to get familiar with TED will find all they ever wanted to know about it here.

The authors examine the development of disregards and trends in lone parenthood, but the main purpose of their research was to test the assumption that by manipulating financial incentives policy-makers could alter the behaviour of claimants. Their results further demonstrate that this simplified economic assumptions cannot be applied to real people: decisions about participation in the labour market were impervious to changes in disregard policy. The book contains some other important research findings — the low impact of information on the behaviour of claimants and their downward mobility on rejoining the labour market — but they are not always easy to unpack from this detailed and (on my copy at least) poorly reproduced report.

Despite their contrasting approaches, these books contain some complementary insights. Both demonstrate the futility of attempting to meet need in an ad hoc or incremental fashion in only one sector of welfare. Thus attempts at introducing gender-equality in the 1975 pension plan

proposed by Barbara Castle have been frustrated by gender inequalities in employment and earnings, while the intentions of disregard policies have been prevented from being realized by inadequate child care facilities and job opportunities. Both point to the recent may be forgiven for occasionally thinking that pensions are incidental to his interest. The author adopts a 'libertarian anti-state, socialist orientation' and proceeds to describe the welfare state as a 'Keynesian/Beveridge mode of domination' and pensions as 'relations of domination'. Behind such unnecessary and laboured attempts at theorizing and the frustrating habit of informing the reader at regular intervals what has gone before and what is coming up next, there are some measured and illuminating passages on the development of pension policy which are worthy of wide attention.

The book by Albert Weale and his colleagues is an example of just the sort of pragmatic social policy analysis that presumably Shragge and others have reacted against. There is no explicit theoretical foundation, no critical commentary on policy and no attempt to explain the poverty of lone parents. These were not the intentions of the book, which instead reports the results of research conducted into the operation of the 'tapered earnings disregard' (affectionately known as TED). It was introduced in 1980 to encourage single parents living on supplementary benefit to take more self-supporting by enabling them to keep a slightly higher proportion of their earnings if they went out to work. Those wanting to get familiar with TED will find all they ever wanted to know about it here.

The authors examine the development of disregards and trends in lone parenthood, but the main purpose of their research was to test the assumption that by manipulating financial incentives policy-makers could alter the behaviour of claimants. Their results further demonstrate that this simplified economic assumptions cannot be applied to real people: decisions about participation in the labour market were impervious to changes in disregard policy. The book contains some other important research findings — the low impact of information on the behaviour of claimants and their downward mobility on rejoining the labour market — but they are not always easy to unpack from this detailed and (on my copy at least) poorly reproduced report.

Despite their contrasting approaches, these books contain some complementary insights. Both demonstrate the futility of attempting to meet need in an ad hoc or incremental fashion in only one sector of welfare. Thus attempts at introducing gender-equality in the 1975 pension plan

BOOKS

SOCIAL POLICY

Doyenne of social work education

Eileen Younghouse: a biography
by Kathleen Jones
Bedford Square Press, £7.50
ISBN 071991138 9

Eileen Younghouse was born in 1902 and died in 1981. Her contribution to social welfare, in particular social work, in Britain and overseas was outstanding. She laid the foundations for the first British generic social work course at the London School of Economics, a development which had far-reaching repercussions both in the educational and professional spheres. She chaired the committee whose recommendations led to the growth of two-year non-graduate training for social work in health and welfare services in the maintained sector of higher education. She was the force behind the creation of a National Institute of Social Work Training, whose contribution to education and research has been substantial.

Kathleen Jones documents these and Eileen's many other achievements in the context of a sensitive and recent biography, which deals with a person and events which were well known but not necessarily well understood. As a student at the LSE, in the last years of a specialized course in child care, soon to be replaced by the emerging profession of this change but only dimly aware of the bitter power struggle within the LSE, which ended in Eileen's resignation. Of that epic struggle, she remarked to her biographer thirty years later: "The ashes are still hot". (What is it about the LSE that generates such fierce and hurtful struggles of which this is but one example?) From a position of involvement with Eileen's professional world for over 30 years, it is difficult to judge whether others new to the issues and events will find this book as absorbing. I suspect more has to be said and researched (as Kathleen Jones herself acknowledges) for the student of social welfare, and possibly there has to be more imaginative speculation for the general reader of biography.

Eileen Younghouse was a deeply reserved person. Kathleen Jones's monthly conversations with her over three years, preceding her sudden death in 1981, were probably as reflective and intimate as any Eileen had had. A biographer must respect

Olive Stevenson
Olive Stevenson is professor of social work studies at the University of Nottingham.

Research Highlights in SOCIAL WORK

This well-established series of books examines areas currently of central interest to people working in social services and related fields. Each book draws together a collection of articles on different aspects of the theme under discussion, highlighting relevant research and drawing out implications for policy and practice.

NEW TITLES
No. 10
Approaches to Addiction
Edited by Joyce Lohman & Gordon Horvath
£12.95 Hardback ISBN 1 85081 002 4
£6.95 Paperback ISBN 1 85081 001 4
c. 100pp 216x136mm. Available March 1985

Developing Services for the Elderly
Edited by Joyce Lohman & Gordon Horvath
£12.95 Hardback ISBN 1 85081 002 2
£6.95 Paperback ISBN 1 85081 003 0
c. 100pp 216x136mm. Available March 1985

Available from bookshops or, in case of difficulty, direct from the publishers:
To: Kogan Page, 120 Pentonville Road, London N1, Tel: 01-837 7881
Please send me a fully detailed leaflet on the above series.

Names _____
Position _____
Organization _____
Address _____

Alan Walker
Alan Walker is reader in social policy at the University of Sheffield.

such passionate privacy both in how much is asked or probed and how much, in the event, is passed on. In any case, it is probably too soon to make of this extraordinary life a coherent pattern. Born into an aristocratic society, whose social norms, especially in relation to women, she rejected, a non-graduate with little formal education who never rose above the status of lecturer but whose intellect and lucidity of expression were of the highest order; a doyen of social work education who never undertook the professional training of the day; the paradoxes are numerous and waiting to be further explored.

Perhaps one can, however, venture one rather sad reflection. Was Eileen Younghouse born out of her time? Her childhood in India, with all its resonances, ably described by Kathleen Jones, conjures up a picture of the making of a Great Victorian Woman and yet she was born the year after Queen Victoria died. At a time when upper middle-class women were (with a struggle) making their way to Oxford and Cambridge, Eileen, despite suggestions, did not pursue that route, and, indeed, one gets the impression that notions of an intellectual career did not arise until she was in her late twenties. At that age, too, she rejected the idea of professional training as a psychiatric social worker, a decision which was to have profound consequences for the subsequent battle at the LSE. As Kathleen Jones points out, many social workers of the time did not possess a professional qualification and thus Eileen was not exceptional. Yet her reasons for rejecting it, a dislike of the exploration and analysis of emotions, were again out of time. She would have been more comfortable with some of her biographical contemporaries with the present generation who have swung the pendulum back again away from such exploration to the preoccupation with material and environmental problems which beset their clients.

What might have happened if Eileen had taken that training and had changed, and been changed by, that powerful professional group? For in the end one is left with a sense of incompleteness. The energy, ability and commitment that she brought to the social work of the LSE, and to the advancement of the subject, was it because she could not take the emotional and intellectual risks which are fused in writing?

So the story is not finished but it has been well begun by Kathleen Jones. It is a great pity that the Bedford Square Press has seen fit to publish in print so small that it puts off tired eyes, but, reading Eileen and her biographer deserve better than this. The shoddy appearance of the book ill accords with the refinement and dignity of its subject.

National health

Health and Health Services: an introduction to health care in Britain
by John R. Butler and Michael S. B. Vale
Routledge & Kegan Paul, £6.95
ISBN 071009902 9

Hospital at Home: the alternative to general hospital admission
by Freda Clarke
Macmillan, £20.00 and £7.50
ISBN 0333 37525 4 and 37526 2

In three years' time, the 'National Health Service' celebrates its fortieth birthday. These two books are concerned with how, and how well, the NHS is meeting the objectives set for it since 1948.

John Butler and Michael Vale view the NHS as a system for transforming resources ('inputs') of staff, buildings

and equipment into services ('outputs') which aim to benefit those who use them ('welfare outcomes'). They locate this system in an environment characterized by five features: demographic, epidemiological, cultural, economic and political. This model allows the authors to concentrate their chapters on particular links in the input-output chain, while at the same time keeping the wider system in view. Early chapters cover the patterns of health, the financing of the NHS, the distribution of its resources and its administrative structure. Later ones are devoted to the measurement and evaluation of services, tackling such concepts as need, quality, effectiveness and efficiency.

Although this systems approach provides much concise and jargon-free information, it does have its problems. Butler and Vale's 'health services system' refers to professional health care, a definition which excludes and obscures the wider system of unpaid caring services on which the NHS rests. The informal care provided by family and community is not identified within the system, nor within 'the wider array of institutions that have implications for health'. Further, the structural forces shaping the experience of health and the provision of health care are reduced to environmental 'features'. In the process, social class emerges as an 'epidemiological trend', while gender and racial divisions are not addressed. As a consequence, crucial areas of debate are eclipsed. For example, the book does not discuss the way in which the social divisions of class, race and sex are found reflected in the professional divisions between doctors, nurses and ancillary workers within the NHS.

The need for a broader vision on health care, and on informal health care in particular, is argued at length in *Hospital at Home*. The book presents the case, passionately (and somewhat repetitively) for 'services which would enable certain patients traditionally hospitalized, to remain at home while undergoing treatment'. While community care is aimed at patients no longer requiring the specialist services of a hospital, home-care schemes are explicitly for those whose recovery depends on specialist care. Freda Clarke begins with a historical survey, concluding that the development of hospitals as the place for specialist care in Britain has left the NHS unable to provide such care to patients living at home. Next, she reviews existing home-care schemes, focusing on the pioneering *Hospitalization & Domesticity* in Paris and the *Not Hospital at Home* scheme run in Peterborough between 1978 and 1981. In her summary, Clarke advocates that patients in such domiciliary schemes should remain under the hospital consultant and not the GP, that paid patient aides should be attached to each case and that a new category of nurse managers should oversee the programme.

Despite its focus on the needs of patients and families, the book is strangely removed from the realities of caring for sick relatives at home. Clarke observes that the material condition of the patient's home and the availability of relatives and neighbours are assessed in the selection of patients for home-care schemes. However, she does not integrate these observations into a wider, critical perspective on the implications of these schemes for reducing class inequalities in health and reducing the burden of informal caring that currently falls on women. We learn little of the experiences of those who do the unpaid caring, and how carers feel about the choice to accept or refuse a place on the home-care scheme. The chapter on 'The Other Carers', where such discussion might be expected, refers to the contribution of ancillary workers, social workers and volunteers.

Of the two books, Butler and Vale's especially 'as far as it goes'. However, like *Hospital at Home*, it has a somewhat limited vision of contemporary arguments about the health service.

Hilary Graham
Hilary Graham is lecturer in social policy at the University of Bradford.

Two titles from the World Health Organization have been published by Her Majesty's Stationery Office. Number 23 in the series 'Public Health in Europe' is a report on a study entitled *Sex and Family Planning: what we teach the young*, by B. Lewin (£7.60). The research covered nine countries: Belgium, FDR, Italy,

Allen & Unwin Social Policy

Poor Britain
Joanna Mack and Stewart Lansley

Against a background of the coldest political climate for the poor since the war, this book, based on the award-winning LWT documentary series *Breadline Britain*, presents a comprehensive and up-to-date account of poverty in Britain. The author's findings and analysis should be of central interest to anyone who wishes to discover the truth that lies behind the claims and counter-claims that are made about poverty in Britain today.
March 1985 Hardback £16.00 Paperback £8.95

Accounting for Aggression
Gerda Siann

The despair and incomprehension which often seem to be the only possible response to acts of aggression and violence have led to attempts by academics and scientists from a wide variety of backgrounds to understand and explain such behaviour. In this book the author examines the contributions of biologists, ethologists, sociologists, psychologists and phenomenologists, drawing from the ideas that have been presented in each discipline which seem to be of lasting explanatory value.
July 1985 Hardback £18.00 Paperback £8.95

The Practice of Social Work with Groups
A Systematic Approach
Ken Heap

This book offers a systematized approach to modern group work practice, tracing the course of the group work process, establishing principles, clarifying aims and detailing planning procedures. It also provides numerous examples from European group work practice, in its many current applications, including medical social work, family treatment, youth work, psychiatry and gerontological services.
March 1985 Hardback £18.00 Paperback £8.50
National Institute Social Services Library: 49

Problems, Tasks and Outcomes
The Evaluation of Task-Centred Casework in Three Settings
E. Matilda Goldberg, Jane Gibbons and Ian Sinclair

This book brings together three British studies that accompanied and in some respects pioneered, the introduction of task-centred casework into the United Kingdom. The research suggests what task-centred casework can and cannot achieve, describes how clients experience it, and finally seeks to define the skills it requires.
January 1985 Hardback £20.00
National Institute Social Services Library: 47

George Allen & Unwin (Publishers) Ltd.,
PO Box 19, Park Lane, London W1A 2AE.
Hemel Hempstead, Herts. HP2 4TE.

Social Policy in Modern Britain Series

Edited by Jo Campling.
A series for students of social administration and social work.

Work and Inequality
Susan Lonsdale

An examination of the current structure and trends within the labour market, and a look at five groups facing discrimination and disadvantage.
To be published 25th March £8.95 net Paperback ISBN 0 582 29629 3 296 pp

The Elderly in Modern Society
Anthony Barber

Second edition
£8.50 net Paperback ISBN 0 582 29648 8 384 pp

Education as Social Policy
Janet Finch

£8.95 net Paperback ISBN 0 582 29696 6 296 pp

Health Policy and the National Health Service
Judy Allcock

£8.95 net Paperback ISBN 0 582 29559 8 338 pp

Foundations of the Welfare State
Pat Thane

£7.50 net Paperback ISBN 0 582 29515 7 220 pp

Social Responses to Handicap
Eckl Topfner

£5.00 net Paperback ISBN 0 582 29538 6 140 pp

Housing and Social Justice
Gill Burke

£8.95 net Paperback ISBN 0 582 29514 9 238 pp

Inspection copies of all the above are available to teaching staff in the UK who wish to consider adopting them as course texts. For more information and subject catalogue please contact Catherine Burrell, Longman House, Burnt Mill, Harlow, Essex CM20 2JE.

Longman

T.H.E.S. SPECIAL BOOK NUMBER

NEXT WEEK ENGLISH

ENGLISH

CLASSIFIED ADVERTISEMENTS

The Times Higher Education Supplement

to place advertisements write to or telephone:

The Advertisement Manager,
The Times Higher Education Supplement,
Priory House, St John's Lane, London EC1M 4BX.
Tel: 01-253 3000. Telex 264971
All advertisements published subject to the Terms and Conditions of
Times Newspapers Ltd (available on request)

Rates:

Classified Display - £12.40 psc
Minimum size: 9cm x 1 col @ £11.60
Classified Linage - £2.40 per line
Minimum 3 lines - @ £7.20
Box number - £2.00

copy deadlines:

Classified Display:
Friday in the week prior to publication
Classified Linage:
Monday 10.00 am in the
week of publication

Universities

MANAGEMENT CENTRE

The Aston Management Centre operates at post-experience, postgraduate and undergraduate level. It pursues a vigorous research programme and has a specially funded ESRC Doctoral Programme.

MARKETING AND STRATEGIC MANAGEMENT DIVISION

Successful candidates for the following posts will be members of this active division of the Centre. Ideally, candidates will have a good first degree and a higher degree in a relevant area of management, with practical experience in either Marketing or Strategic Management.

Teaching Fellow in Marketing (REF. 688/158)

The work will be wide and varied and will include teaching Marketing Management and contributing to specialist programmes, as appropriate, in Distribution, Marketing Research, International Marketing and Consumer Behaviour at undergraduate, postgraduate and post-experience levels.

Teaching Fellow in Strategic Management (REF. 689/158)

The chief responsibilities of the post will be the teaching of Business Policy and Strategic Management to undergraduate and postgraduate students and contributing to the development of post-experience courses for industry and commerce.

Appointments will be for a period of 3 years with the possibility of renewal for a further period not exceeding 3 years. Opportunities also exist for secondments from industry or commerce as well as for part-time appointments.

Salary will be within the range £7,520 to £17,705 p.a. (Other Related Staff ranges IA, II or III), depending upon age, qualifications and experience.

ORGANISATION, PERSONNEL & EMPLOYMENT DIVISION

Lectureship in Personnel Management (REF. 670/158)

Applicants should be prepared to research and teach in personnel management. They should have strong qualifications in one or more of psychology, social psychology, occupational psychology and organisation behaviour and, preferably, a higher degree.

The appointment will be for a period of 3 years, with the possibility of renewal or transfer to a continuing appointment.

DEPARTMENT OF MODERN LANGUAGES - LANGUAGE STUDIES UNIT

Lecturer in English (EFL/ESP) (REF. 671/158)

Duties will include teaching on the Unit's courses, including the MSc in the Teaching of English for Specific Purposes and the supervision of postgraduate students, and co-ordinating and developing the Unit's direct teaching operations.

The appointment, which will be available from July 1985, will be for a period of 3 years initially, with the possibility of renewal for a further period of 3 years.

Salaries will be within, and may be up to the maximum, of the range £7,520 to £14,925 p.a.

Application forms and further particulars, quoting appropriate Ref. No., from:

Personnel Officer (Academic Staff), Aston University, Aston Triangle, Birmingham B4 7ET.

(Tel: 021-359 3811 Ext. 4884)

Closing date for the receipt of applications: 19th April, 1985.

UNIVERSITY OF LONDON University Training Advisers

Organising the federal training programme, developing training materials for use in individual schools of the University, and advising on training methods are three aspects of this interesting post. It would suit those who have well developed administrative skills who, having helped identify the training needs of non-teaching staff, can liaise with others to translate ideas into practice. The salary will be within the range of ca. £15,000 - £19,000 per annum. It is hoped to fill the post by secondment for a period of up to three years although a short-term contract arrangement will also be considered.

Further particulars available from the Personnel Officer, University of London, Senate House, Malet Street, London WC1E 7HU. Tel: 01-936 8000 Ext. 0248. Closing date for receipt of applications 15 April 1985.

(70005)

University of Exeter School of Education TUTORSHIP IN PHYSICAL EDUCATION

Applications are invited for the above post, tenable from 1st September 1985, for a period of 3 years. The post involves teaching physical education courses in the B.Sc. Physical Education programme and this Outdoor Education course in the P.C.E.S. There will be the opportunity for the appointee to be seconded to the M.P.E.I. or to the D. School.

Salary will be £6,600 per annum.

Further particulars available from the Personnel Officer, University of Exeter, Exeter EX4 4JQ, to whom applications should be sent by 23rd April 1985.

(70006)

University of Birmingham Department of Psychology SENIOR LECTURERSHIP IN CLINICAL PSYCHOLOGY

Applications are invited from qualified clinical psychologists for the above post, tenable from 1st September 1985, for a period of 3 years. The post involves teaching clinical psychology courses in the B.Sc. Psychology programme and this Outdoor Education course in the P.C.E.S. There will be the opportunity for the appointee to be seconded to the M.P.E.I. or to the D. School.

Salary will be £14,135 per annum.

Further particulars available from the Personnel Officer, University of Birmingham, Birmingham B15 2TT, to whom applications should be sent by 23rd April 1985.

(70007)

RICHMOND COLLEGE LECTURER II IN POLITICAL SCIENCE

Applications are invited for the above vacancy, commencing duties in late August 1985. Richmond College is an expanding International College within which the Division of Social Sciences currently offers two major (degree) programmes; this post will play an important part in the further development of the BA in Political Science programme.

Applicants should have at least a Masters degree in Politics or a related discipline and substantial teaching experience. Duties will include teaching a range of key courses in the major, curriculum development, and academic advising of students from 70 nations, under the supervision of the Divisional Chairman and the Academic Dean.

Salary will be determined by qualifications and experience, and will fall within the Burnham F.E. range for Lecturer II, currently £7,545-£12,090 but due for review.

Further information about the College and the Division of Social Sciences together with a detailed job description is available from the Office of the Academic Dean. Letters of application and curriculum vitae should be submitted to: Dr Robert Kuehn, Academic Dean, Richmond College, Queens Road, RICHMOND, Surrey TW9 0LP.

(70008)

UNIVERSITY OF OXFORD New blood Appointments in Science and Mathematics

Applications are invited for the following university lectureships tenable from 1 October 1985. It is hoped that each of these appointments will be held in conjunction with college fellowships as indicated below. Further particulars of the university lectureships and of the relevant college appointments may be obtained from the person named below, to whom applications (ten typed copies, or one from overseas applicants) should be sent. (Separate application is not necessary for the associated college appointments.) The closing date for receipt of applications is 22 April 1985.

ENGINEERING SCIENCE

Fluid Mechanics

St. Catherine's College

Robotics

Brasenose College

(Professor C.P. Wroth, Department of Engineering Science, Parks Road, Oxford, OX1 3PJ. Telephone Oxford (0865) 59888.)

MATHEMATICS

Numerical Analysis

Linacre College

(Professor K. W. Morton, Computing Laboratory, (Numerical Analysis Group), 8-11 Keble Road, Oxford, OX1 3DD. Telephone Oxford (0865) 64141.)

Algebra and Number Theory

Wolfson College

(Chairman of the Board of the Faculty of Mathematics, Mathematical Institute, 24-29 St. Giles', Oxford, OX1 3LB. Telephone Oxford (0865) 54285.)

MOLECULAR BIOPHYSICS

LABORATORY:

Structural Molecular Biology

Hertford College

(Professor Sir David Phillips, F.R.S., Molecular Biophysics Laboratory, South Parks Road, Oxford, OX1 3QU. Telephone Oxford (0865) 58733.)

(70009)

UNIVERSITY OF OXFORD University Lectureship in Distributed Computing (In association with Pembroke and Somerville Colleges)

Applications are invited for a university lectureship in Distributed Computing tenable from 1 October 1985. The appointment will be made under the University Grants Committee's scheme, in association with the Science and Engineering Research Council, for financing a number of additional Information Technology posts in universities. This post may be held in conjunction with a fellowship at Pembroke College and a lectureship at Somerville College.

Further particulars may be obtained from Professor C.A.R. Hoare, F.R.S., The Computing Laboratory, 8-11 Keble Road, Oxford, OX1 3QU (Telephone: Oxford (0865) 54141), to whom applications (ten typed copies, or one from overseas applicants), should be sent. (Separate application is not necessary for the associated college appointments.)

The closing date for receipt of applications is 22 April 1985.

(70010)

UNIVERSITY OF EVANSVILLE-BRITISH CAMPUS GRANTHAM, LINCOLNSHIRE ECONOMIST

Required for Harlaxton College which provides courses in British culture and institutions for American undergraduate students. The post is a residential one and it is expected that the person appointed will be in the early stages of his or her academic career. The possession of a doctoral degree will be an advantage but is not a necessity. The successful candidate will be required to teach introductory courses in both Macro and Micro Economics and also have more specialised courses in International Economics, Comparative Economic Systems, and The British Economy.

Application forms and further details may be obtained from the Secretary, Harlaxton College, Grantam, Lincolnshire NG32 1AG.

(70011)

Universities continued

THE UNIVERSITY OF LEEDS



LECTURESHIPS

NEW APPOINTMENTS

Under the UGC New Blood Scheme the University of Leeds has been awarded a total of 11 new lectureships. Each post is tenable from 1 September, 1985 and salaries will be on the lecturer scale, £7,520 - £14,925 per annum, under review. The upper age limit for applicants under the New Blood Scheme is 35. Further particulars are available from the Registrar, The University of Leeds, Leeds LS2 9JT, to whom applications should be sent. Please quote the appropriate reference number.

FACULTY OF ARTS

Department of French (Ref No. 5/8)
MODERN FRENCH LANGUAGE: Study of the language of presentation, persuasion and negotiation in French at a formal level, with particular reference to administrative, economic and commercial contexts. Expertise in other linguistic/philosophical areas would be an advantage. Closing date for applications 2 May, 1985.

FACULTY OF ECONOMIC AND SOCIAL STUDIES

Department of Social Policy and Health Services Studies (Ref No. 35/21)
LABOUR MARKETS, SOCIAL CLASS AND SOCIAL POLICY: the analysis of public and private welfare provision, with particular reference to the social division of welfare. Closing date for applications 16 May, 1985.

FACULTY OF SCIENCE

Department of Physical Chemistry (Ref No. 46/24)

STATISTICAL-MECHANICAL MODELLING in conjunction with a broad-based experimental investigation (including NMR, diffraction and calorimetry) of the physico-chemical behaviour of micelles, liquid crystals and biological membranes. Closing date for applications 16 May 1985.

Department of Genetics/The Biotechnology Unit (Ref No. 201/3)

PROTEIN ENGINEERING: development of a molecular technology based on ordered intracellular protein assemblies using natural protein crystals modified to include specific functional domains. Closing date for applications 9 May, 1985.

Department of Applied Mathematical Studies (Ref No. 51/15)

FLUID MECHANICS: the study of irregular flows, both naturally occurring and in engineering contexts, synthesising analytical methods with observation and numerical results. Closing date for application 25 April, 1985.

FACULTY OF ENGINEERING

Department of Ceramics (Ref No. 62/17)
CERAMICS: development of ceramics for electronic applications, particularly for electro-optic and microwave components. The Department has established electroceramics research interests, interfacing with solid state physics and chemistry and electronic engineering. Closing date for applications 16 May, 1985.

Department of Electrical and Electronic Engineering (Ref No. 66/34)

Research interests in the general area of HIGH FREQUENCY COMMUNICATION SYSTEMS AND SUBSYSTEMS including: radio communication; propagation, microwave communication systems, uhf radio propagation; spread spectrum systems; radio data; satellite navigation. Closing date for applications 9 May, 1985.

Department of Mechanical Engineering (Ref No. 69/32)

THERMOFLUIDS: mathematical modelling of steady-state turbulent flow with varying degrees of compressibility and chemical reaction. Closing date for applications 9 May, 1985.

FACULTY OF MEDICINE

Department of Cardiovascular Studies (Ref No. 105/28)

CARDIOVASCULAR STUDIES in collaboration with Neuroendocrine Unit, Newcastle) a neuroendocrinologist to work on regulatory peptides in the cardiovascular system with experience, if any, of a variety of techniques such as ICC, radioimmunoassay, receptor binding etc. Closing date for applications 2 May, 1985.

Department of Community Medicine and General Practice (Ref No. 36/26)

MEDICAL STATISTICS: the design and implementation of expert systems for providing statistical advice on study design and analysis to medical researchers. Familiarity with microcomputers essential. Closing date for applications 16 May, 1985.

Department of Microbiology (Ref No. 96/37)

BIOCHEMICAL INVESTIGATIONS ON THE MODE OF ACTION OF ANTI-FUNGAL DRUGS: proven record in biochemically based research on fungi required. Closing date for applications 9 May, 1985.

University of Exeter

School of Education

Applications are invited for ALECTURESHIP

In the Faculty of Learning in the Early Years, tenable from 1st September 1985, for a period of 3 years. The post involves teaching early years courses in the B.Sc. Early Years programme and this Outdoor Education course in the P.C.E.S. There will be the opportunity for the appointee to be seconded to the M.P.E.I. or to the D. School.

Salary will be within the range £7,520 - £11,925 per annum.

Further particulars available from the Personnel Officer, University of Exeter, Exeter EX4 4JQ, to whom applications (7 typed copies, or one from overseas applicants) should be sent by 19th April 1985.

quoting reference 3/1 (70012)

The University of Sussex

'NEW BLOOD' LECTURESHIPS

Applications are invited from qualified men and women for the following lectureships from 1 September 1985:

1) Philosophy with Cognitive Science

to contribute to the teaching and laboratory development, to participate in research, planning, curriculum development and supervision of students on intellectual placement, and to engage in relevant research.

Applicants should hold a good honours degree and should have had teaching, (ideally at research level) in the application of modern control technology to heavy current electrical engineering.

Compensatory salary will be determined by age, qualifications and experience within the range £7,520-£14,925 per annum.

Further details are available from the Staffing Officer, University of Ulster at Jordanstown, 40 Ardara, BT27 0DB (Telephone: 0232 22411) to whom applications, including a full curriculum vitae and the names and addresses of three referees, should be sent not later than 1 April 1985.

(70013)

UNIVERSITY OF SURREY

Applications are invited for the following recently announced
"New Blood" Lectureships.

Department of Chemical and Process Engineering

Lectureship in Process Biotechnology: this post provides an opportunity for an enthusiastic and mathematically sophisticated individual to join a team in the Departments of Chemical and Process Engineering and of Microbiology, in developing a major programme of research into the engineering of animal cell cultures.

The appointee will be expected to contribute to research on dynamic modelling of bioreactors, and to participate in developing new teaching activities in Process Biotechnology. The post would be suitable for graduates from a range of disciplines including chemical or process engineering, control engineering, and applied mathematics. (REF. 367)

Department of Civil Engineering

Lectureship in the Demolition and Recycling Research Unit: the post will particularly involve research work associated with full-scale engineering structures during construction, repair and demolition.

Candidates should have a good undergraduate degree in materials science or civil engineering, and postgraduate experience in research and/or industry. The appointee will be expected to undertake a limited amount of teaching within the field at construction materials at undergraduate and postgraduate level. (REF. 368)

Department of Materials Science and Engineering

Lectureship in the field of Rapid Solidification: the post has been created to develop existing work on the Rapid Solidification Processing of metallic materials. Particular emphasis is to be placed on the creation of novel structures by the consolidation of atomised metal powders using a number of fabrication routes.

The successful candidate is expected to have a materials science background with prior experience relevant to rapid solidification or powder metallurgy and a strong research record. (REF. 369)

Department of Physics

Lectureship in Theoretical Nuclear Physics: applications are invited for this post from theorists with a PhD and thorough training and experience in modern nuclear theory techniques, including computation. An active interest in the Department's current areas of research in low and intermediate energy nuclear reaction theory and at the borders of nuclear, atomic, molecular and particle physics will be an advantage, but considerable weight will be placed on evidence of a clear potential for contributions to future developments in a rapidly changing field. An interest in the development of the teaching of theoretical physics of undergraduate and postgraduate level is essential. (REF. 370)

All posts are tenable from 1 August 1985 and applicants should normally be under the age of 35 years. The posts are not open to persons holding university appointments in the United Kingdom of whatever kind. The salary will be within the Lecturer Scale, £7,520 - £14,925 per annum, according to age, qualifications and experience.

Further particulars are available from the Academic Registrar (AA), University of Surrey, Guildford, Surrey, GU2 5XH, or telephone Guildford 571281 Ext. 633. Applications from men and women in the form of a curriculum vitae, including the names and addresses of three referees, should be sent to the same address by 26 April 1985, quoting the appropriate reference.

Cranfield

Through advanced teaching and applied research, Cranfield has created centres of excellence in high technology and management which provide an increasingly valuable service to industry, commerce, agriculture and defence.

Lecturers in: 1. OPERATIONS* MANAGEMENT 2. QUANTITATIVE ANALYSIS

Cranfield School of Management is one of the major university business schools in Europe and works closely with industrial and commercial organisations in all areas of management development.

The first appointee will be expected to contribute to teaching and research across the broad range of operations management and to specialise in one or more of the following areas: Materials Management, Manufacturing Planning and Control, Technology Management, Service Operations.

The second appointee should have an interest in teaching quantitative analysis and statistical methods within a business context. A research interest in the use of microcomputers in management decision-making will be an advantage.

Applicants should have a good first degree (a higher degree is an advantage), business experience and at least some experience of teaching/lecturing though not necessarily in an educational environment. The preferred age range is 25-35.

The current lecturer salary scale rises to £14,925 p.a. Assistance may be given with relocation expenses.

Enquiries should be in the first instance be addressed to Mrs. Julie Wardell, quoting reference 8011/2.

School of Management, Cranfield Institute of Technology, Cranfield, Bedford MK43 0AL. Tel: Bedford (0234) 751122.

Cranfield School of Management

making of in economics would complement existing skills.

A high standard of teaching is required at both post-graduate and management levels. Candidates should have a good first degree (a higher degree is an advantage), business experience and at least some experience of teaching/lecturing though not necessarily in an educational environment. The preferred age range is 25-35.

The current lecturer salary scale rises to £14,925 p.a. Assistance may be given with relocation expenses.

Enquiries should be in the first instance be addressed to Mrs. Julie Wardell, quoting reference 8011/2.

School of Management, Cranfield Institute of Technology, Cranfield, Bedford MK43 0AL. Tel: Bedford (0234) 751122.

Cranfield School of Management

UNIVERSITY OF CAMBRIDGE

Faculty of Modern and Medieval Languages

UNIVERSITY LECTURER

UNIVERSITY ASSISTANT LECTURER

Information Technology Appointments in the DEPARTMENT OF LINGUISTICS

The University hopes soon to be in a position to make an appointment in the field of Speech Technology. Applicants should have extensive knowledge of speech processing and recognition and/or synthesis, and an active knowledge of phonetic theory. A background in one or more of Electronic Engineering, Computing, and Psychology would be an advantage. The successful candidate will be expected to carry out research and to make a contribution to the teaching of phonetics in the Department. Salary will be in the range of £7,520 to £15,000.

The appointment will be for three years with the possibility of renewal, for a Lecturer, to the retiring age, or, for an Assistant Lecturer, for two years. There is no grade of Senior Lecturer.

Applicants must not hold any permanent appointment in a United Kingdom university. There is no age limit.

Applications (ten typed copies) giving details of qualifications and experience, together with a curriculum vitae and the names of two or three referees, should be sent to the Secretary of the Department of Modern and Medieval Languages, Sidgwick Avenue, Cambridge CB3 9DA, to reach her not later than 19th April 1985.

(70014)

LECTURER IN INFORMATION PROCESSING

Applications are invited for the above post in the Department of Library and Information Studies.

Candidates will be expected to teach information systems design and information processing (mainly at postgraduate level) and to undertake research. They will be expected to assist in structuring new courses and research programmes in line with continuing developments in information technology.

The appointment will be made in the lower half of the lecturer scale £7,520 to £14,925 for three years in the first instance.

Further details and application form from Paul Johnson, Establishment Officer, tel. 887018.

Loughborough

Leicestershire

UNIVERSITY OF ULSTER LECTURESHIP IN ELECTRICAL ENGINEERING at Jordanstown

Ref: J85/49

To contribute to the teaching and laboratory development, to participate in research, planning, curriculum development and supervision of students on intellectual placement, and to engage in relevant research.

Applicants should hold a good honours degree and should have had teaching, (ideally at research level) in the application of modern control technology to heavy current electrical engineering.

Compensatory salary will be determined by age, qualifications and experience within the range £7,5

Universities continued

UNIVERSITY OF KEELE
POSTS AT KEELE

The University of Keele is strengthening a number of Departments, particularly in research, as the first of a number of new initiatives.

A major feature of the Keele philosophy for undergraduates is the provision of a wide range of dual honours options and each of the Departments listed contributes to this programme.

We are looking for a professor to lead the three branches of the Modern Languages Department - French, German and Russian; to initiate and encourage research and joint development where appropriate.

The post in Electronic Engineering is the University's first chair in Engineering and the new professor will be expected to expand activities in electronics in close collaboration with physics.

Chair in The Department of Modern Languages
Applications are invited for a Chair in the newly formed Department of Modern Languages, tenable from 1 October, 1985.

The successful candidate will be expected to assume the Headship of the Department which encompasses the former Departments of French, German and Russian Studies. The appointment may be made in either French or German, although preference will be given to an appointment to the Chair of French. The University would also welcome applicants with expertise in more than one of the subject areas of the department. Salary will be within the current Professorial range.

Chair of Electronic Engineering
The University has established a Chair of Electronic Engineering in the Department of Physics, tenable from 1 October 1985. Electronic Engineering interests within the Department include Digital Signal Processing, Medical Electronics and Bioengineering, Instrumentation, Thin Film Technology and Quantum Electronics. Applications are invited from candidates with interests in any of the above fields or with an interest in initiating a new area of research. Salary will be within the current Professorial range.

Lectureship in Biology
Applications are invited for a Lectureship in Biology in the Department of Biological Sciences, tenable from 1 October 1985. Candidates should have experience in cellular immunology and will be expected to work in collaboration with the research group led by Professor Arne, the main interests of which are in the field of molecular biology. Experience with monoclonal antibodies would be an advantage. Salary will be within the first four points of the Lecturer scale, £7,520-£14,925.

NEW BLOOD POSTS
Eligibility for the following New Blood Lectureships is limited to persons who are 35 and under on the date of taking up appointment, and who currently hold no permanent University appointments in the United Kingdom, of any kind.

Department of Biological Sciences
'New Blood' Lectureship in Biochemistry (Cell Biology)
Applications are invited for a 'New Blood' Lectureship in Biochemistry (Cell Biology) in the Department of Biological Sciences, tenable from 1 October 1985. The successful candidate will be expected to work in collaboration with Professor Arne, the main interests of which are in the field of molecular biology and immunology. The salary will be in the range £7,520-£14,925 with placing dependent on age and experience.

Department of Geology
'New Blood' Lectureship in Applied Sedimentology
Applications are invited for the post of Lecturer in Applied Sedimentology. The successful applicant will be expected to take up his/her duties on 1 October, 1985, and will develop research and teaching in areas of sedimentology relevant to resource-related industries, for example, basin analysis and sediment diagenesis. Applicants should possess a higher degree in geology, and industrial experience would be an advantage. The salary will be in the range £7,520-£14,925 with placing dependent on age and experience. Application forms and further particulars from the Registrar, University of Keele, Keele, Staffordshire, ST5 5BG, to whom they should be returned not later than 24 April 1985. Please indicate the post(s) in which you are interested. (70006)

The American International
College of London
DIVISION OF MATHEMATICS, SCIENCE
AND COMPUTER SCIENCERICHMOND COLLEGE
LECTURER II IN
MATHEMATICS

Applications are invited for the above new appointment commencing in September 1985. The post has been created as a result of the college's continued expansion and the establishment of a new degree program in Mathematical Sciences.

Applicants should be enthusiastic and sympathetic teachers with at least three years relevant experience and should have qualifications appropriate to teaching mathematics at undergraduate level. Knowledge of some aspects of computing would be considered an advantage.

Duties will include teaching key courses in the new program, curriculum development and academic advising of students from over 70 nations, under the supervision of the Divisional Chairman and the Academic Dean.

Letters of application, names of two referees and full curriculum vitae should be submitted by 8th April to:
Dr. Robert E. Kuehn, Academic Dean, Richmond College, Queens Road, Richmond, Surrey TW9 1BJ. (02041)

UNIVERSITY COLLEGE
LONDON"New Blood" and Information Technology
LECTURESHPIS

Applications are invited for the following appointments under the UGC's "New Blood" and Information Technology initiatives. The posts are available from 1 October 1985 and for the "New Blood" posts candidates should normally be aged 35 or under.

"NEW BLOOD" LECTURESHPIS
BOTANY AND MICROBIOLOGY (REF. NB1) - Bacterial Ecology. Microbiologist with interests in plant-microbe interactions, particularly how plant-microbe interactions influence bacterial survival, growth and competitiveness in the natural environment.

CHEMISTRY (REF. NB2) - Synthetic organic chemistry. Candidates should have special interests in the synthesis of natural products or molecules of biological importance. Those who are already candidates for our post of Lecturer "having special interests in teaching and research in organic chemistry or in biological chemistry or in both" for which applications closed on 8 March 1985 will automatically be considered and need not apply again.

COGNITIVE LINGUISTICS (REF. NB3) - Research to be focused on the interface between grammar and the language of thought. Candidates should have interests in 2 or more of: syntactic theory, semantics, natural language processing, pragmatics (relevance theory).

MATHEMATICS (REF. NB4) - In the field of Algebra to work in the group led by Professor P. H. Cohen.

NUTRITIONAL ANTHROPOLOGY (REF. NB5) - (Joint appointment with the Department of Human Nutrition, London School of Hygiene and Tropical Medicine and Department of Anthropology, UCL). Candidates should have interests in the inter-disciplinary and comparative study of nutritional problems in both the underdeveloped and developed worlds. Persons with training in the social aspects of either anthropology or nutrition are encouraged to apply, although a basic knowledge of the physiology of human nutrition is likely to be an advantage. If required, the successful applicant may be asked to undergo additional research training in nutrition or anthropology.

PHARMACOLOGY (REF. NB6) - Application of the techniques of molecular biology and immunology (eg monoclonal antibody methods) to the study of receptors. The Department has complementary expertise in the physiological investigation of receptors and in other aspects of immunopharmacology.

PHILOSOPHY (REF. NB7) - History of Philosophy, possibly specialising in Recent Continental Philosophy. Applicants for the post advertised in February will automatically be considered and need not apply again.

PHYSICS AND ASTRONOMY (REF. NB8) - In the fields of Theoretical Atomic Physics and Astrophysics. The successful candidate should have interests in fundamental atomic and molecular physics, in the determination of atomic and molecular data required for research in astronomy, and in astrophysical theory.

TRANSPORT STUDIES (REF. NB9) - within the Department of Civil and Municipal Engineering. Research to be focused on computer-aided traffic engineering with the aim of increasing the usefulness to practicing traffic engineers of modern computing technology.

ZOOLOGY (REF. NB10) - A molecular cell biologist with experience in molecular genetics is sought to work on the Department's research in molecular development in association with Professor M. C. Raff's Neuroimmunology Group.

INFORMATION TECHNOLOGY
COMPUTER SCIENCE (REF. IT1) - Candidates would preferably have a research interest in aspects of data communication protocols, distributed systems or systems analysis. Candidates who are currently employed in industry would be eligible.

ELECTRONICS (REF. IT2) - In the field of Opto-electronics with particular interest in optical fibre systems.

Salary for all posts will be on the Lecturer Scale £7,520-£14,925 per annum plus £1,233 per annum London Allowance.

Applications (no forms) including a full cv and names and addresses of two referees should be sent to: Assistant Secretary (Personnel), University College London, Gower Street, London WC1E 6BT. Closing date for applications is 12 April 1985.

Please quote appropriate reference number in all correspondence. (020146)

HERIOT-WATT UNIVERSITY
NCR CHAIR
IN
MICROELECTRONICS

Applications are invited for this newly created Chair in the Department of Electrical and Electronic Engineering. The successful applicant will have an established record of research and development in microelectronics systems and will be expected to provide leadership in research and teaching in this field. The department has a considerable commitment to research in digital systems and their applications in control, communications and information processing. Developing areas include expert systems and robotics. There is a S.S.R.C. funded research project in the area of microelectronics systems and their applications in control, communications and information processing. Successful candidates will be expected to develop research in these areas. Further particulars and application forms are available from the Secretary, Heriot-Watt University, Chambers Street, Edinburgh, EH1 1HT (please quote reference number 18/85), to whom completed application forms should be returned by 30th April 1985. (70010)

MAGDALEN COLLEGE,
OXFORD
SENIOR BURSAR
(CHIEF FINANCIAL
EXECUTIVE)

Magdalen College intends to appoint to the full-time post of Senior Bursar, which will fall vacant on 1st January 1986. The Senior Bursar is the chief financial executive and is charged with the management of the considerable property and investments of the College and the administration of its income and expenditure. It is hoped that the successful candidate will be able to join the College in advance of 1st January 1986 to assist in the transition of the post. The post carries with it a Fellowship of the College, is open to men and women.

An application form and further particulars may be obtained from the President, Magdalen College, Oxford, OX1 2AH, to whom completed applications should be submitted not later than 24th April 1985. (02041)

UNIVERSITY OF BRADFORD
ASSISTANT
LIBRARIAN (TWO
POSTS)
Ref: AS/L/TH

Applications are invited for the above posts both of which will be primarily of a subject specialist nature: one post will be devoted to Engineering, with possible involvement in the natural sciences; the other will be in the Social Sciences for which possession of a foreign language could be an advantage. Candidates should have a good Honours degree and an appropriate qualification in librarianship or information science. The posts are on Grade UAP 1A and the salary is £7,520-£12,150 p.a.

Application forms are available by writing or telephoning the Personnel Officer, University of Bradford, Bradford, West Yorkshire, BD9 4JQ. Tel: (0274) 79444. Fax: 224/222613. Closing date: 24th April 1985. (70009)

THE UNIVERSITY OF
MANCHESTER
NEW BLOOD POSTS

Applications are invited for the following posts of LECTURER which have been established under the national scheme to encourage the appointment of younger members of the academic staff (the "new blood" scheme). Applications should normally be made in the age range 30-35 years. Each post is tenable from October 1st, 1986 or a later date to be arranged. The salaries will be within the range £7,520-£14,925 per annum.

MEDICINE (ENDOCRINOLOGY) (Ref. 41/85).
The post is for a cell biologist who will conduct research into mechanisms of hormonal action on multiple cell systems working initially on interactions in vivo between bone cells, on the nature of their inter-cellular signals and on their hormonal control. Undergraduate and postgraduate teaching will be in the Departments of Medicine and Biochemistry.

PHARMACEUTICAL CHEMISTRY/MAGNETIC RESONANCE IMAGING
In the Department of Pharmacy (Ref. 42/85). A physical scientist is required with a specific interest and experience in NMR to develop non-invasive methods for the study of drugs and their formulations in vivo. The appointee will have access to a purpose-built SERC-funded imaging facility.

MOLECULAR/CELL/DEVELOPMENTAL BIOLOGY
In the Department of Basic Dental Science (Ref. 43/85). Candidates should have research experience in contemporary techniques and provide a strong input to the department's research into developmental mechanisms during normal and abnormal craniofacial embryogenesis.

PHYSIOLOGY (Ref. 44/85).
Applications of NMR spectroscopy and imaging in the study of isolated, perfused tissues and organs.

CIVIL ENGINEERING Geotechnical Modelling (Ref. 45/85).
To join the geotechnical group in the resolution of engineering problems by physical or computational and physical modelling using the largest centrifuge in the UK and supported by the facilities of the University of Manchester Regional Computer Centre.

PHYSICS Theoretical Nuclear Physics (Ref. 46/85).
Preference will be given to candidates with a demonstrated interest in non-resonant aspects of nuclear physics, as revealed in deep inelastic lepton scattering and new high density phases of matter relevant to relativistic heavy-ion collisions and astrophysics.

PHYSICS Experimental Atomic and Molecular Physics (Ref. 47/85).
Preference will be given to candidates with research interests in spectroscopy or collision physics.

ENGLISH LANGUAGE AND LITERATURE The Language of Literature (Ref. 48/85).
Candidates should be especially interested in the application of current linguistic theory to the study of English poetry.

ECONOMICS WITH SCIENCE AND TECHNOLOGY POLICY) Economics of Technical Change (Ref. 49/85).
The post will be concerned with the development of quantitative indicators of technological change and the relation between technological performance and industrial competition. It will contribute to the collaborative programme of research into innovation mounted jointly by the Departments of Economics and Science and Technology Policy.

Particulars and application forms (returnable by April 8th, 1985) from the Registrar, The University, Manchester M13 9PL. Please quote the appropriate reference. (0201)

Through advanced teaching and applied research, Cranfield has created centres of excellence in high technology and management which provide an increasingly valuable service to industry, commerce, agriculture and defence.

Academic Research in
TURBOMACHINERY

The School of Mechanical Engineering has an established reputation in the fields of energy, propulsion and mechanical integrity and extension of the School's Turbomachinery Research Group has led to the creation of two new academic positions.

Applicants should be highly qualified and experienced in either radial or axial flow compressors or turbines. There is particular interest in locating people involved in numerical studies of flow within turbomachines or in turbine technology.

The successful candidates will be expected both to generate and be responsible for contract research projects and to supervise students working for higher degrees.

Salaries will be within the following University scales: Research Fellow £7,520-£12,150; Senior Research Fellow £11,205-£14,925; and Reader £14,156-£17,706. Assistance may be given with relocation expenses.

For further details please apply to the Personnel Department (ext. 3338) quoting ref. 5025.

Cranfield Institute of Technology, Cranfield, Bedford MK43 0AL. Telephone Bedford (0234) 750111.

HERIOT-WATT UNIVERSITY
Department of Chemistry
"New Blood" Lectureship in
Analytical/Physical Chemistry

The successful applicant will explore and exploit laser techniques in analytical chemistry and should have experience, or a strong interest, in the application of lasers to chemical analysis and/or instrumental analytical chemistry. The appointee will also participate in the teaching of physical and analytical chemistry to both undergraduate and postgraduate students.

Applicants should be not more than 35 and not in a permanent UGC funded appointment.

Salary will be according to age, qualifications and experience on the scale £7,520-£14,925 p.a. (under review).

Further particulars and application forms are available from the Personnel Officer, University of Bradford, Bradford, West Yorkshire, BD9 4JQ. Tel: (0274) 79444. Fax: 224/222613. Closing date: 24th April 1985. (70009)

Universities continued

University
of Reading
Appointments'NEW BLOOD' LECTURESHPIS
Department of Agriculture and Horticulture

The post is in the Crop Production Section of the Department. It is expected that the appointee would develop research in seed physiology, particularly quantitative studies of environmental effects on seed longevity, vigour, and genetic damage during processing and storage as they affect field performance and genetic conservation. (Ref. NB. 851)

Department of Physics
Applicants should have research experience in experimental inelastic neutron scattering as applied to condensed matter physics. A strong neutron scattering group already exists at Reading and is actively involved in research programs with the new spallation source at the nearby Rutherford-Appleton Laboratory. (Ref. NB. 852)

Department of Food Science
Reading has the largest Faculty of Agriculture and Food in the country. The Department is primarily concerned with the study of the behaviour of food systems and is seeking to appoint a macromolecular biochemist or physicochemist/theorist who is interested in the interpretation of physical properties of food systems in molecular terms. (Ref. NB. 853)

Department of Economics
Applications are invited from those with training in economics, finance or accounting for a post generally concerned with the application of economics and/or accounting theory to finance and accounting, widely defined. Candidates either presently, or willing to become, interested in the economics of information, the treatment of imperfect markets and the economics of organisations will be especially welcomed. (Ref. NB. 854)

All the appointments are from 1 October 1985. Current salary scale £7,520 to £14,925 p.a. plus USS/USDPs benefits. Further particulars for each post and application forms (2 copies) are available from the Personnel Officer, University of Reading, Whiteknights, P.O. Box 217, Reading, RG6 2AH, telephone (0734) 876123 ext. 220. Please quote appropriate Ref. No. Closing date 19 April 1985. (020130)

The American International College of London

LECTURER II IN
PSYCHOLOGY

Applications are invited for the above vacancy, commencing in September 1985. Richmond College is an expanding international College within which the Division of Social Sciences currently offers two major (degree) programmes; this new post will be an important part in the implementation of the projected third BA major in Psychology and the consolidation of the existing Counselling Certificate programme.

Applicants should have at least a Masters degree in Psychology and substantial teaching experience.

Duties will include teaching a range of key courses in the major, curriculum development, programme supervision and academic control of students from 70 nations, under the supervision of the Divisional Chairman and the Academic Dean.

Salary will be determined by qualifications and experience and will fall within the Burmham F.E. range for Lecturer II, currently £7,548-£12,098 but due for review.

Further information about the College and the Division of Social Sciences together with a detailed job description is available from the Office of the Academic Dean. Letters of application and curriculum vitae should be submitted to: Dr Robert Kuehn, Academic Dean, Richmond College, Queens Road, RICHMOND, Surrey TW9 1BJ. (02018)

Goldsmiths' College
University of London
School of Education
3rd, Department

LECTURER
SENIOR LECTURER
IN EDUCATION
(PRIMARY)
LANGUAGE/
MULTICULTURAL
EDUCATION

Applications are invited from suitably qualified teachers with relevant experience in primary schools. Applicants should be able to develop a research interest in at least one of the two areas stated and to contribute to the research programme of the School.

The Lecturer appointed will be required to contribute to the Professional and Curriculum Development of the new B.Ed. Honours Degree.

The salary will be on the scale £8,586 to £14,925 p.a. inclusive of London Allowance.

Write for further details to the Senior Assistant Registrar, Goldsmiths' College, 6-11 Colindale Avenue, London NW9 7ST. Tel: (0181) 593700. Fax: (0181) 593701. Closing date: 19 April 1985. (52708)

University of Exeter
TEMPORARY
LECTURER
IN FRENCH

Applications are invited for the above post for a period of 1 year, commencing in September 1985. The post is for a temporary post or cover for a permanent post. The salary will be on the scale £7,520-£14,925 p.a. plus USS/USDPs benefits.

Further particulars available from the Personnel Officer, University of Exeter, Exeter, Devon, to whom applications (4 copies), giving names and addresses of three referees, should be sent by 19 April 1985. (02041)

University of Warwick
LECTURESHPIS
IN LAW

Applications are invited for one or more Lectureships in Law. The post is for a temporary post or cover for a permanent post. The salary will be on the scale £7,520-£14,925 p.a. plus USS/USDPs benefits.

Further particulars available from the Personnel Officer, University of Warwick, Coventry CV4 7AL. Tel: (0247) 84444. Fax: (0247) 84445. Closing date: 19 April 1985. (52585)

University of Warwick
LECTURESHPIS
IN LAW

Applications are invited for one or more Lectureships in Law. The post is for a temporary post or cover for a permanent post. The salary will be on the scale £7,520-£14,925 p.a. plus USS/USDPs benefits.

Further particulars available from the Personnel Officer, University of Warwick, Coventry CV4 7AL. Tel: (0247) 84444. Fax: (0247) 84445. Closing date: 19 April 1985. (52585)

University of Warwick
LECTURESHPIS
IN LAW

Applications are invited for one or more Lectureships in Law. The post is for a temporary post or cover for a permanent post. The salary will be on the scale £7,520-£14,925 p.a. plus USS/USDPs benefits.

Further particulars available from the Personnel Officer, University of Warwick, Coventry CV4 7AL. Tel: (0247) 84444. Fax: (0247) 84445. Closing date: 19 April 1985. (52585)

The Queen's University Belfast
SIX 'NEW BLOOD' LECTURESHPIS
and
One Information Technology Lectureship

Applications are invited for the following Lectureships at the Queen's University of Belfast under the UGC 'New Blood' and Information Technology initiatives. The appointments are tenable from 1 October 1985 or such other date as may be arranged.

'NEW BLOOD' LECTURESHPIS
BIO-ORGANIC CHEMISTRY/COMPUTING GRAPHICS
Department of Pure and Applied Chemistry

This Lectureship will have special responsibility for developing a research project in bio-organic chemistry with a strong emphasis on the use of computer graphics in the study of molecular structure and reactivity. The appointee will be expected to contribute to the teaching of bio-organic chemistry and to the development of a research programme in this area.

POWER ENGINEERING
Department of Electrical and Electronic Engineering

The person appointed will be expected to contribute to the teaching of power engineering and to the development of a research programme in this area. The appointee will be expected to contribute to the teaching of power engineering and to the development of a research programme in this area.

GEOLGY (REMOTE SENSING)
Department of Geology

The Lectureship is in the field of remote sensing and its applications. A background in geological sciences is essential and the appointee will be expected to contribute to the teaching of remote sensing and to the development of a research programme in this area.

INTERNAL COMBUSTION ENGINES
Department of Mechanical and Industrial Engineering

The Lectureship is in the field of internal combustion engines and its applications. A background in mechanical engineering is essential and the appointee will be expected to contribute to the teaching of internal combustion engines and to the development of a research programme in this area.

MOLECULAR PATHOLOGY
Department of Pathology

The Lectureship is in the field of molecular pathology and its applications. A background in pathology is essential and the appointee will be expected to contribute to the teaching of molecular pathology and to the development of a research programme in this area.

ATOMIC COLLISION PHYSICS
Department of Pure and Applied Physics

The Lectureship is in the field of atomic collision physics and its applications. A background in physics is essential and the appointee will be expected to contribute to the teaching of atomic collision physics and to the development of a research programme in this area.

INFORMATION TECHNOLOGY LECTURESHPIS
SOFTWARE ENGINEERING

The primary interest is in the development of software for the control of manufacturing systems. The appointee will be expected to contribute to the teaching of software engineering and to the development of a research programme in this area.

The salary scale for all posts is £7,520-£14,925 p.a. plus USS/USDPs benefits. Further particulars for each post and application forms (2 copies) are available from the Personnel Officer, University of Reading, Whiteknights, P.O. Box 217, Reading, RG6 2AH, telephone (0734) 876123 ext. 220. Please quote appropriate Ref. No. Closing date 19 April 1985. (020130)

MURDOCH UNIVERSITY
Perth, Western Australia

External Studies Unit
EDUCATION OFFICER
(LIMITED TERM RENEWABLE)

The appointee will be responsible to the Director of External Studies, will work directly with academic staff of the University's Schools of Education and Human Communication in planning the external mode of their courses and will be expected to contribute to the other areas of teaching within the Programme and the School of Human Communication, particularly in the areas of Curriculum, Culture, Art and Inquiry. (REF: 0448 - post available from 1st February 1986).

Closing date for applications: 30th April 1985.

The two positions above are offered on a renewable five year contract basis.

School of Social Inquiry
LECTURESHPIS IN HISTORY

The History Programme includes streams in Modern American and Modern European History, including Great Britain. The appointee will be expected to contribute to the teaching of history and to the development of a research programme in this area.

Candidates should have tertiary teaching experience in both fields for two years period, and a demonstrated research interest in one of these fields. (REF: 0448 - post available from 1st February 1986).

This position is a renewable appointment.

Closing date for applications: 19th April 1985.

Salary Range: Education Officer/Lectureship A\$24,640 per annum to A\$32,634 per annum (appointments will normally be made at the lower steps of the grade).

Conditions of appointment for all three positions include superannuation, long service leave, outside studies programme, payment of fares to Perth for appointees and dependents, and other benefits in accordance with the University's policies.

Procedure for Applications: There is no prescribed application form, but two complete sets of detailed applications, quoting the appropriate reference number, including full details of qualifications, research interests, and a list of referees, should be submitted to the Director of External Studies, Murdoch University, Murdoch, Western Australia 6150, by the closing date stated above.

Applicants resident in the United Kingdom, Europe or Africa, at the time of application should also forward one further copy to the Secretary General, Association of Commonwealth Universities (Asia), 28 Gordon Square, London WC1H 0PF. (70009)

University of Warwick
LECTURESHPIS
IN LAW

Applications are invited for one or more Lectureships in Law. The post is for a temporary post or cover for a permanent post. The salary will be on the scale £7,520-£14,925 p.a. plus USS/USDPs benefits.

Further particulars available from the Personnel Officer, University of Warwick, Coventry CV4 7AL. Tel: (0247) 84444. Fax: (0247) 84445. Closing date: 19 April 1985. (52585)

University of Warwick
LECTURESHPIS
IN LAW

Applications are invited for one or more Lectureships in Law. The post is for a temporary post or cover for a permanent post. The salary will be on the scale £7,520-£14,925 p.a. plus USS/USDPs benefits.

Further particulars available from the Personnel Officer, University of Warwick, Coventry CV4 7AL. Tel: (0247) 84444. Fax: (0247) 84445. Closing date: 19 April 1985. (52585)

The American International
College of London
DIVISION OF MATHEMATICS,
SCIENCE AND COMPUTER SCIENCE
RICHMOND COLLEGE
LECTURER II
IN SCIENCE

Applications are invited from well-qualified candidates for the above post commencing in September 1985.

Applicants will be required to teach Physics and Chemistry to a level roughly equivalent to Advanced Level and one of the two at a higher level to Freshmen and Sophomores following pre-engineering and pre-medical programs.

Duties other than teaching will include supervision of the science laboratory, curriculum development and academic advising of students from over 70 nations under the supervision of the Divisional Chairman and the Academic Dean.

Letters of application,

Universities continued

University of
Surrey
Department of Linguistics &
International Studies
**LECTURER
IN LAW**

Applications are invited for a Lecturer in Law to teach the Department of Linguistics and International Studies from 1 September 1985. The successful candidate will participate in the teaching of English Law to students pursuing a degree in Modern Law and will be required to teach Constitutional and Administrative Law and Public International Law. An interest in English Law will also be an advantage.

Salary will be in the range of £14,000 to £14,500 per annum according to age, qualifications and experience with superannuation under UK conditions. Further particulars are available from the Academic Registrar, University of Surrey, Guildford, Surrey GU2 5XH, Tel: 0432 371981, Ext. 433. Applications should be sent to the Academic Registrar, University of Surrey, Guildford, Surrey GU2 5XH, Tel: 0432 371981, Ext. 433. Applications should be sent to the Academic Registrar, University of Surrey, Guildford, Surrey GU2 5XH, Tel: 0432 371981, Ext. 433.

University of Kent
at Canterbury
**CAREERS
ASSISTANT**

Applications are invited from graduates for a post of Careers Assistant to provide a careers education programme for undergraduates in certain faculties within the University of Kent. The successful candidate will be responsible for the provision of careers guidance and advice to students, and will be required to undertake a variety of tasks including the preparation of careers materials, the organization of careers events, and the provision of careers advice to students.

An appointment will be made at the appropriate point in the career structure. The salary scale is £6,000 to £12,500 per annum.

Application forms and further particulars of the post will be sent upon receipt of a stamped addressed envelope (10" x 5 1/2") by the Personnel Office, University of Kent, Canterbury, Kent CT2 7NF. Please quote reference A/20/85 in the subject line of the envelope. The closing date for applications is 15 April 1985.

University of
Otago
Dunedin,
New Zealand
LECTURER IN LAW

Applications are invited for a Lecturer in Law to teach the Department of Law at the University of Otago. The successful candidate will be responsible for the provision of a law programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of law materials, the organization of law events, and the provision of law advice to students.

Salary: Lecturer NZ\$21,000 to NZ\$25,000 per annum, with a bar of NZ\$12,500 per annum. In addition, a cost-of-living allowance will be paid.

The Lecturer will have the right of private practice, and will be subject to the control of the University Council.

Prospective applicants are invited to write for further information to the Secretary, Commonwealth Universities, 60 Whitehall, London WC1A 9PP, or to the University of Otago, Dunedin, New Zealand.

Aberystwyth
The University College
of Wales
**LECTURER
IN ECOLOGY**

Applications are invited for a Lecturer in Ecology to teach the Department of Biology at the University College of Wales, Aberystwyth. The successful candidate will be responsible for the provision of an ecology programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of ecology materials, the organization of ecology events, and the provision of ecology advice to students.

The appointment will be made at the appropriate point in the career structure. The salary scale is £14,000 to £14,500 per annum.

Further particulars and application forms can be obtained from the Academic Registrar, University of Surrey, Guildford, Surrey GU2 5XH, Tel: 0432 371981, Ext. 433.

University of
York
Department of Biology
Applications are invited for
the following lectureships:**1. NEW BLOOD
LECTURESHIP
IN THE SOCIOLOGY
OF SCIENCE AND
TECHNOLOGY**
(reference 6/3117)

Applicants for this lectureship, which is available from October 1985, should have a background in natural science and a strong interest in the sociology of science. The person appointed will be responsible for the provision of a sociology programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of sociology materials, the organization of sociology events, and the provision of sociology advice to students.

**2. TEMPORARY
LECTURESHIP
IN SOCIOLOGY**
(reference 6/3119)

Applications are invited for a temporary lectureship in Sociology for a period of one year from October 1985. The successful candidate will be responsible for the provision of a sociology programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of sociology materials, the organization of sociology events, and the provision of sociology advice to students.

Salary within the lower part of the lecturer's scale (£7,500 - £14,925 per annum, with US\$).

Further particulars and application forms can be obtained from the Academic Registrar, University of York, Heslington, York YO1 5DD, Tel: 01904 275221, Ext. 433.

University of
Edinburgh
Department of Chemistry
**UGC 'NEW BLOOD'
POST IN
BIO-INORGANIC
CHEMISTRY**

Candidates should have research interests in the chemistry of transition metal complexes, and should have a strong background in inorganic chemistry. The person appointed will be responsible for the provision of a bio-inorganic chemistry programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of bio-inorganic chemistry materials, the organization of bio-inorganic chemistry events, and the provision of bio-inorganic chemistry advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Edinburgh, Edinburgh, Scotland, Tel: 0131 275221, Ext. 433.

The University of
Hull
Department of Educational
Studies
**'NEW BLOOD'
LECTURESHIP IN
MORALE EDUCATION**

Applications are invited for a Lecturer in Morale Education to teach the Department of Educational Studies at the University of Hull. The successful candidate will be responsible for the provision of a morale education programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of morale education materials, the organization of morale education events, and the provision of morale education advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Hull, Hull, England, Tel: 0482 275221, Ext. 433.

The University of
Sheffield
**'NEW BLOOD'
LECTURESHIP
IN PHYSICS**

Applications are invited for a Lecturer in Physics to teach the Department of Physics at the University of Sheffield. The successful candidate will be responsible for the provision of a physics programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of physics materials, the organization of physics events, and the provision of physics advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Sheffield, Sheffield, England, Tel: 0114 275221, Ext. 433.

The University of
Stirling
Centre for Japanese Studies
**LECTURER
IN JAPANESE
STUDIES**

Applications are invited for a Lecturer in Japanese Studies to teach the Centre for Japanese Studies at the University of Stirling. The successful candidate will be responsible for the provision of a Japanese studies programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of Japanese studies materials, the organization of Japanese studies events, and the provision of Japanese studies advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Stirling, Stirling, Scotland, Tel: 01896 275221, Ext. 433.

The University of
Lancaster
ESRC Information
Technology & Education
Programme
Applications are invited for
an**ADMINISTRATIVE
ASSISTANT**
(Post A)
and
**RESEARCH
ASSISTANT**
(Post B)

Both posts will be filled by persons experienced in the use of information technology in education. The successful candidate will be responsible for the provision of an administrative or research programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of administrative or research materials, the organization of administrative or research events, and the provision of administrative or research advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Lancaster, Lancaster, England, Tel: 0524 275221, Ext. 433.

The University of
Newcastle upon Tyne
**CHAIR
OF PHILOSOPHY**

Applications are invited for the Chair of Philosophy at the University of Newcastle upon Tyne. The successful candidate will be responsible for the provision of a philosophy programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of philosophy materials, the organization of philosophy events, and the provision of philosophy advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Newcastle upon Tyne, Newcastle upon Tyne, England, Tel: 0191 275221, Ext. 433.

University of
Bristol
**'NEW BLOOD'
LECTURESHIP
IN CHEMISTRY**

Applications are invited for a Lecturer in Chemistry to teach the Department of Chemistry at the University of Bristol. The successful candidate will be responsible for the provision of a chemistry programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of chemistry materials, the organization of chemistry events, and the provision of chemistry advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Bristol, Bristol, England, Tel: 0117 275221, Ext. 433.

University of
Sussex
Cognitive Studies Programme
**THREE
LECTURESHIPS
IN ARTIFICIAL
INTELLIGENCE**

Applications are invited for three Lecturers in Artificial Intelligence to teach the Cognitive Studies Programme at the University of Sussex. The successful candidate will be responsible for the provision of an artificial intelligence programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of artificial intelligence materials, the organization of artificial intelligence events, and the provision of artificial intelligence advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Sussex, Brighton, England, Tel: 01323 275221, Ext. 433.

The University of
Leeds
Department of Linguistics and
Phonetics
**TEACHING
FELLOWSHIP**

Applications are invited for a Teaching Fellowship to teach the Department of Linguistics and Phonetics at the University of Leeds. The successful candidate will be responsible for the provision of a linguistics and phonetics programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of linguistics and phonetics materials, the organization of linguistics and phonetics events, and the provision of linguistics and phonetics advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Leeds, Leeds, England, Tel: 0113 275221, Ext. 433.

The University of
Sheffield
**LECTURER
IN JAPANESE
STUDIES**

Applications are invited for a Lecturer in Japanese Studies to teach the Department of Japanese Studies at the University of Sheffield. The successful candidate will be responsible for the provision of a Japanese studies programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of Japanese studies materials, the organization of Japanese studies events, and the provision of Japanese studies advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

University of
Newcastle upon Tyne
**CHAIR
OF PHILOSOPHY**

Applications are invited for the Chair of Philosophy at the University of Newcastle upon Tyne. The successful candidate will be responsible for the provision of a philosophy programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of philosophy materials, the organization of philosophy events, and the provision of philosophy advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Newcastle upon Tyne, Newcastle upon Tyne, England, Tel: 0191 275221, Ext. 433.

University of
Stirling
**LECTURESHIP
IN RETAILING**

Applications are invited for a Lecturer in Retailing to teach the Department of Business Studies at the University of Stirling. The successful candidate will be responsible for the provision of a retailing programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of retailing materials, the organization of retailing events, and the provision of retailing advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Stirling, Stirling, Scotland, Tel: 01896 275221, Ext. 433.

University College
Dublin
**ASSISTANT
LECTURER IN THE
DEPARTMENT
OF ETHICS
AND POLITICS**

Applications are invited for an Assistant Lecturer in the Department of Ethics and Politics at University College Dublin. The successful candidate will be responsible for the provision of an ethics and politics programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of ethics and politics materials, the organization of ethics and politics events, and the provision of ethics and politics advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University College Dublin, Dublin, Ireland, Tel: 01 275221, Ext. 433.

University of
Exeter
**LECTURESHIP
IN PHYSICAL
CHEMISTRY**

Applications are invited for a Lecturer in Physical Chemistry to teach the Department of Chemistry at the University of Exeter. The successful candidate will be responsible for the provision of a physical chemistry programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of physical chemistry materials, the organization of physical chemistry events, and the provision of physical chemistry advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Exeter, Exeter, England, Tel: 0392 275221, Ext. 433.

The University of
Leeds
Department of Linguistics and
Phonetics
**TEACHING
FELLOWSHIP**

Applications are invited for a Teaching Fellowship to teach the Department of Linguistics and Phonetics at the University of Leeds. The successful candidate will be responsible for the provision of a linguistics and phonetics programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of linguistics and phonetics materials, the organization of linguistics and phonetics events, and the provision of linguistics and phonetics advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Leeds, Leeds, England, Tel: 0113 275221, Ext. 433.

The University of
Sheffield
**LECTURER
IN JAPANESE
STUDIES**

Applications are invited for a Lecturer in Japanese Studies to teach the Department of Japanese Studies at the University of Sheffield. The successful candidate will be responsible for the provision of a Japanese studies programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of Japanese studies materials, the organization of Japanese studies events, and the provision of Japanese studies advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Sheffield, Sheffield, England, Tel: 0114 275221, Ext. 433.

University of
Bristol
**'NEW BLOOD'
LECTURESHIP
IN CHEMISTRY**

Applications are invited for a Lecturer in Chemistry to teach the Department of Chemistry at the University of Bristol. The successful candidate will be responsible for the provision of a chemistry programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of chemistry materials, the organization of chemistry events, and the provision of chemistry advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Bristol, Bristol, England, Tel: 0117 275221, Ext. 433.

University of
Stirling
**LECTURESHIP
IN RETAILING**

Applications are invited for a Lecturer in Retailing to teach the Department of Business Studies at the University of Stirling. The successful candidate will be responsible for the provision of a retailing programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of retailing materials, the organization of retailing events, and the provision of retailing advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Stirling, Stirling, Scotland, Tel: 01896 275221, Ext. 433.

University College
Dublin
**ASSISTANT
LECTURER IN THE
DEPARTMENT
OF ETHICS
AND POLITICS**

Applications are invited for an Assistant Lecturer in the Department of Ethics and Politics at University College Dublin. The successful candidate will be responsible for the provision of an ethics and politics programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of ethics and politics materials, the organization of ethics and politics events, and the provision of ethics and politics advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University College Dublin, Dublin, Ireland, Tel: 01 275221, Ext. 433.

University of
Exeter
**LECTURESHIP
IN PHYSICAL
CHEMISTRY**

Applications are invited for a Lecturer in Physical Chemistry to teach the Department of Chemistry at the University of Exeter. The successful candidate will be responsible for the provision of a physical chemistry programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of physical chemistry materials, the organization of physical chemistry events, and the provision of physical chemistry advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Exeter, Exeter, England, Tel: 0392 275221, Ext. 433.

The University of
Leeds
Department of Linguistics and
Phonetics
**TEACHING
FELLOWSHIP**

Applications are invited for a Teaching Fellowship to teach the Department of Linguistics and Phonetics at the University of Leeds. The successful candidate will be responsible for the provision of a linguistics and phonetics programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of linguistics and phonetics materials, the organization of linguistics and phonetics events, and the provision of linguistics and phonetics advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Leeds, Leeds, England, Tel: 0113 275221, Ext. 433.

The University of
Sheffield
**LECTURER
IN JAPANESE
STUDIES**

Applications are invited for a Lecturer in Japanese Studies to teach the Department of Japanese Studies at the University of Sheffield. The successful candidate will be responsible for the provision of a Japanese studies programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of Japanese studies materials, the organization of Japanese studies events, and the provision of Japanese studies advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Sheffield, Sheffield, England, Tel: 0114 275221, Ext. 433.

Universities continued

University of
Bath
School of Management
**PLACEMENTS AND
PROJECTS OFFICER**

To manage the finding and operation of industrial placements and final year projects for undergraduates, management students. The person appointed must understand the needs of students and the needs of industry, and must be able to provide a high standard of service to both.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Bath, Bath, England, Tel: 01225 275221, Ext. 433.

University of
Bath
**LECTURER
IN COMPUTING
MAN-MACHINE
SYSTEMS**

Applications are invited for a Lecturer in Computing Man-Machine Systems to teach the Department of Computing at the University of Bath. The successful candidate will be responsible for the provision of a computing man-machine systems programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of computing man-machine systems materials, the organization of computing man-machine systems events, and the provision of computing man-machine systems advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Bath, Bath, England, Tel: 01225 275221, Ext. 433.

University of
Birmingham
Department of English
Language & Literature
**'NEW BLOOD'
LECTURESHIP**

Applications are invited for a Lecturer in English Language & Literature to teach the Department of English Language & Literature at the University of Birmingham. The successful candidate will be responsible for the provision of an English language and literature programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of English language and literature materials, the organization of English language and literature events, and the provision of English language and literature advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Birmingham, Birmingham, England, Tel: 0121 275221, Ext. 433.

University of
Exeter
Department of French &
Italian
**LECTURER
IN FRENCH**

Applications are invited for a Lecturer in French to teach the Department of French & Italian at the University of Exeter. The successful candidate will be responsible for the provision of a French programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of French materials, the organization of French events, and the provision of French advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Exeter, Exeter, England, Tel: 0392 275221, Ext. 433.

University of
Canterbury
New Zealand
**LECTURER
IN CHEMISTRY**

Applications are invited for a Lecturer in Chemistry to teach the Department of Chemistry at the University of Canterbury. The successful candidate will be responsible for the provision of a chemistry programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of chemistry materials, the organization of chemistry events, and the provision of chemistry advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Canterbury, Canterbury, New Zealand, Tel: 03 275221, Ext. 433.

University of
Durham
Department of Mathematical
Statistics
**LECTURESHIP
IN STATISTICS**

Applications are invited for a Lecturer in Statistics to teach the Department of Mathematical Statistics at the University of Durham. The successful candidate will be responsible for the provision of a statistics programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of statistics materials, the organization of statistics events, and the provision of statistics advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Durham, Durham, England, Tel: 0191 275221, Ext. 433.

Goldsmiths' College
University of London
School of Education
**TWO POSTS
OF LECTURER/
SENIOR LECTURER
IN MATHEMATICS
EDUCATION**

Applications are invited for two posts of Lecturer or Senior Lecturer in Mathematics Education to teach the School of Education at Goldsmiths' College. The successful candidate will be responsible for the provision of a mathematics education programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of mathematics education materials, the organization of mathematics education events, and the provision of mathematics education advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, Goldsmiths' College, London, England, Tel: 0181 275221, Ext. 433.

University of
Nottingham
Department of English
**NEW BLOOD POST
IN VIKING STUDIES**

Applications are invited for a Lecturer in Viking Studies to teach the Department of English at the University of Nottingham. The successful candidate will be responsible for the provision of a Viking studies programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of Viking studies materials, the organization of Viking studies events, and the provision of Viking studies advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Nottingham, Nottingham, England, Tel: 0151 275221, Ext. 433.

University of
Aberdeen
Department of Engineering
Science
**LECTURESHIP
IN CIVIL
ENGINEERING**

Applications are invited for a Lecturer in Civil Engineering to teach the Department of Engineering Science at the University of Aberdeen. The successful candidate will be responsible for the provision of a civil engineering programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of civil engineering materials, the organization of civil engineering events, and the provision of civil engineering advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Aberdeen, Aberdeen, Scotland, Tel: 01224 275221, Ext. 433.

University of
Warwick
Department of Economics
**LECTURER
IN ECONOMICS**

Applications are invited for a Lecturer in Economics to teach the Department of Economics at the University of Warwick. The successful candidate will be responsible for the provision of an economics programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of economics materials, the organization of economics events, and the provision of economics advice to students.

Salary: £14,000 to £14,500 per annum, with US\$.

Further particulars and application forms can be obtained from the Academic Registrar, University of Warwick, Warwick, England, Tel: 01827 275221, Ext. 433.

University of
Strathclyde
Department of
Administration
**LECTURER
IN ADMINISTRATION**

Applications are invited for a Lecturer in Administration to teach the Department of Administration at the University of Strathclyde. The successful candidate will be responsible for the provision of an administration programme for undergraduates, and will be required to undertake a variety of tasks including the preparation of administration materials, the organization of administration events, and the provision of administration advice to students.

Polytechnics continued

The Faculty at present consists of four Departments (Accounting & Finance, Business Studies, Economics and Economic History, Management) and a School of Business Information Technology. There are approximately 131 full-time staff and 1800 full-time equivalent students. Degree, postgraduate, BTEC and professional courses are offered in many of these areas.

The position of Dean is at Assistant Director level and, accordingly, the Dean will be expected to contribute to such cross-Polytechnic management functions as are required by the Director. Candidates should have extensive teaching, research and industrial experience and be able to provide the leadership appropriate to this senior position. Ref M/224.

Dean:
Faculty of Management & Business
£24,348
(Vice Principal - Group 12)

The Department offers a number of courses both full-time and part-time, including Honours degrees in Applied Biological Sciences, MIBiol, FIMLS, HND Applied Biology and HNC in Medical Laboratory Sciences, also Biology as a principal subject in the Combined Studies Honours degree. There are 37 teaching staff. The Head of Department is responsible for the academic leadership of the Department and for the effective management of its staffing and resources. Applicants should possess high academic qualifications and a proven record of achievement in applied research, development and/or consultancy. Ref T/709.

Head of Department:
Biological Sciences
Grade VI £17,397 - £19,170
JOHN DALTON FACULTY OF TECHNOLOGY

For further particulars and an application form, returnable by 19 April 1985 send a self-addressed envelope, quoting the appropriate reference number to the Secretary, Manchester Polytechnic, All Saints, Manchester M15 6BH. An Equal Opportunity Employer.

Manchester Polytechnic

NEWCASTLE UPON TYNE POLYTECHNIC
Academic Administration Department

SENIOR ASSISTANT (RESEARCH)
Ref: APC 6/85
NJC Salary and Conditions: Scale 8 £8,532 - £9,114 p.a.

The person appointed will be head of the 'Research' section which is concerned with administration of research and consultancy matters, research degree registrations, and also has some responsibility for the Polytechnic Prospectus and related documents.

It is expected that the person appointed will be a graduate, or possess degree equivalent qualifications.

For further details and application forms please call our 24-hour telephone answering service (0632 323128) or write enclosing a foolscap s.a.s. to Mrs. Linda Morris, Admin. Asst., (Recruitment), Newcastle upon Tyne Polytechnic, Ellison Building, Ellison Place, Newcastle upon Tyne, NE1 8ST, to whom completed forms should be returned quoting the ref. by 4.4.85.

(70019)

TEESIDE POLYTECHNIC
COMPUTER CENTRE

PROJECT MANAGER - Post Reference
Grade: PC3
Salary: £11,250 - £12,243

A Project Manager is required to head the Information and User Support Group of the Computer Centre. The Centre is equipped with a network of 5 Prime computers and serves a user population of over 2,000 staff and students. This is a middle management position in one of the leading Computer Centres in the educational field. An Equal Opportunity Employer.

Application form and further particulars from: The Personnel Section, Teeside Polytechnic, Borough Road, Middlesbrough, Cleveland, TS1 3BA. Tel: Middlesbrough (0462) 218121, Extension 4114.

Closing date for applications: 10 April 1985.

(70007)

Sunderland Polytechnic
Faculty of Education
Department of Teaching Studies

PRINCIPAL LECTURER IN PRIMARY/INFANT EDUCATION
Salary: £13,095 - £14,580
Ref: £16,467

Applications are invited for the position of Principal Lecturer in Primary/Infant Education, which specialises in the field of Primary Education, with special emphasis on the education of young children (5-8). The successful candidate will be expected to have a minimum of 5 years' experience in the field of Primary Education and will be expected to have a proven record of achievement in the field of Primary Education. The position is a senior position and will be expected to have a proven record of achievement in the field of Primary Education. The position is a senior position and will be expected to have a proven record of achievement in the field of Primary Education.

For further details and application forms please call our 24-hour telephone answering service (0632 323128) or write enclosing a foolscap s.a.s. to Mrs. Linda Morris, Admin. Asst., (Recruitment), Newcastle upon Tyne Polytechnic, Ellison Building, Ellison Place, Newcastle upon Tyne, NE1 8ST, to whom completed forms should be returned quoting the ref. by 4.4.85.

(70019)



ROBERT GORDON'S INSTITUTE OF TECHNOLOGY, ABERDEEN
School of Social Studies

LECTURER IN PSYCHOLOGY

to teach a range of degree and diploma courses from 1st September 1985. A particular interest in social and developmental psychology is essential. Experience of teaching social work and teaching care courses is desirable. An active research interest in any of the above areas is essential.

Salary range £8,690 - £10,710 per annum, inclusive with removal expenses.

Details from Secretary, Robert Gordon's Institute of Technology, School of Social Studies, Aberdeen, AB9 1FR (0224 533117).

(70011)

PRINCIPAL LECTURER IN PRIMARY/INFANT EDUCATION
Salary: £13,095 - £14,580
Ref: £16,467

Applications are invited for the position of Principal Lecturer in Primary/Infant Education, which specialises in the field of Primary Education, with special emphasis on the education of young children (5-8). The successful candidate will be expected to have a minimum of 5 years' experience in the field of Primary Education and will be expected to have a proven record of achievement in the field of Primary Education. The position is a senior position and will be expected to have a proven record of achievement in the field of Primary Education.

For further details and application forms please call our 24-hour telephone answering service (0632 323128) or write enclosing a foolscap s.a.s. to Mrs. Linda Morris, Admin. Asst., (Recruitment), Newcastle upon Tyne Polytechnic, Ellison Building, Ellison Place, Newcastle upon Tyne, NE1 8ST, to whom completed forms should be returned quoting the ref. by 4.4.85.

(70019)

Lecturers in Education

Opportunities at all levels in an expanding Department.

Bristol Polytechnic's Education Department is currently entering an exciting new phase in its development. The Department already offers a wide range of initial and in-service courses of teacher education, and is now developing Diploma and Higher Degree courses. As a result we are now seeking several Lecturers to join us in September of this year. All candidates should possess an advanced qualification in education, have teaching experience in a relevant curriculum area, and be actively involved in research.

PRINCIPAL LECTURERS

Educational Studies

Candidates, who should be experienced in teacher education, must have a substantial record of research and publications on philosophical, psychological and/or sociological aspects of education theory and practice. Applications from candidates with experience of primary education and/or equal opportunities policies will be especially welcome.

Curriculum Studies (Primary Education)

Applications are invited from candidates from a wide range of backgrounds in primary education but applicants with teaching and research experience in early childhood education, science, environmental studies, expressive arts, mathematics or special educational needs within the primary school curriculum will be particularly welcome. Reference L158.

LECTURER II's/SENIOR LECTURERS

Educational Studies

Applicants should have advanced qualifications in psychology, philosophy or sociology of education, and must also be able to demonstrate a commitment to teaching outside their disciplines in a range of professionally relevant and issue-based courses. Primary school teaching experience will be an advantage in this post.

Curriculum Studies (Primary Education)

The need is for someone with recent primary school teaching experience and particular interests in one or more of the following areas: early childhood education, expressive arts (including movement), science, mathematics, environmental studies (including geography) and special educational needs in the primary school. Experience of anti-racist and anti-sexist teaching strategies in the primary school will also be welcome.

Curriculum Studies (Secondary/Further Education)

Applicants should have experience of teaching and research on pre-vocational education and/or the pastoral curriculum. The person appointed will be expected to teach on initial and in-service courses and to help in the development of department policy and provision in these areas of increasing importance within the curriculum of secondary and further education.

Special Educational Needs

This Lecturer, who will contribute to both specialist and generalist courses of initial and in-service training, will be expected to have a particular interest in maladjustment and the behaviour of disaffected pupils in ordinary schools. Applications from candidates who also contribute to courses on the psychological aspects of education will be particularly welcome.

Craft, Design and Technology Education

Required to make a major contribution to the training of CDT teachers within the BEd degree and within in-service courses. Applicants should be able to make a particular contribution to the team in the area of computing and electronics and should have a general interest in pre-vocational education.

Mathematics Education

Applicants should be able to contribute to courses on the teaching of mathematics and computing to primary and lower secondary school pupils. Recent experience of teaching mathematics in school is essential. Reference L159.

Applicants for all posts must be prepared to supervise students on teaching practice and to contribute to the Department's developing policies on multi-cultural education and equal opportunities in education.

SALARIES:

PL £13,095 - £14,580 (Bar) - £16,467 per annum

LII £7,548 - £11,175 (Bar) - £12,099 per annum

SL £11,175 - £13,128 (Bar) - £14,061 per annum

The appointment will be made on the appropriate scale according to relevant previous service/experience. (Progression from the LII scale to the SL scale is in accordance with the provisions of the Burnham Further Education Report).

In each case, application forms and further details are available from the Personnel Office, Bristol Polytechnic, Coldharbour Lane, Frenchay, Bristol. Tel: Bristol (0272) 656261 Ext. 216 or 217.

Closing date for all applications 10 April 1985.

Please quote reference number in all communications.

Bristol Polytechnic

bb

The POLYTECHNIC WOLVERHAMPTON

LII/SL in Banking

Salary Scale

£7,548 - £11,175 - £14,061

To be responsible for the organisation and supervision of the Practice of Banking courses and contribute to teaching the Practice of Banking and allied topics. Recent practical banking experience essential.

Further details and application form from The Staffing Office, The Polytechnic, Wolverhampton (0902) 710884 (ansaphone).

(ansaphone)

(ansaphone)

(ansaphone)

(ansaphone)

(ansaphone)

(ansaphone)

(ansaphone)

(ansaphone)

(ansaphone)

(ansaphone)

(ansaphone)

Polytechnics continued

DEPARTMENT OF MANAGEMENT & BUSINESS STUDIES

LECTURER II/SENIOR LECTURER IN BUSINESS ECONOMICS

The department is seeking to fill a vacancy in one of its five Economics posts. The successful candidate will be expected to contribute to the teaching of introductory and advanced Economics on a range of full and part-time courses.

Applications are invited from candidates with relevant qualifications, research interests and teaching experience in applied industrial economics or in macro-economics.

DEPARTMENT OF EDUCATIONAL DEVELOPMENT

FOUR POSTS OF LECTURER/SENIOR LECTURER IN EDUCATION

Following a period of expansion in the Faculty of Educational Studies four new Lectureships in Education are to be established in September 1985. The posts will be located in the Department of Educational Development which mounts full-time and part-time courses for both in-service and initial teaching qualifications but may also involve some teaching on other courses in the Faculty.

Applications are invited from qualified teachers with relevant primary experience and knowledge of in-service education. The lecturers appointed will be able to apply the study of curriculum development to one of the following areas:

Social Studies (ref SL/E1) Language & Reading (ref SL/E2) Mathematics (ref SL/E3) Creative Arts & Music (ref SL/E4)

Applications (which clearly indicate the relevant subject area and ref number) should include a curriculum vitae, the names of three referees, and be sent to: Administrative Assistant (Staffing) Ext. 404

Salary Scale:
Lecturer £ 7,548-£12,099
Senior Lecturer £11,175-£14,061
Closing Date for Applications: 19 April, 1985

oxford polytechnic
Gipsy Lane, Headington, Oxford, OX3 0BP
Telephone: Oxford 64777
AN EQUAL OPPORTUNITIES EMPLOYER

Faculty of Social Science

Applications are invited for the following posts:-

1. DEPARTMENT OF SOCIAL AND POLITICAL STUDIES

LII IN SOCIOLOGY AND SOCIAL POLICY

(2 posts - permanent, 1 temporary for 2 years)

The Department runs a Social Policy and Administration degree, and a Sociology major on the Combined Studies degree, as well as contributing to numerous other courses.

The successful applicants for the two posts will together be expected to contribute towards the teaching of sociological theory, research methods, and introductory sociology and social policy. Specialist development of new line degree options (sociology or social policy) is also to be encouraged.

Candidates should preferably be able to show evidence of teaching and research experience.

2. DEPARTMENT OF SOCIAL WORK, HEALTH AND COMMUNITY STUDIES

LII IN SOCIAL WORK

The successful applicant will join a group of established staff responsible for professional social work education in the Department of Social Work, Health and Community Studies.

Applicants must be qualified social workers and should have substantial experience of practice in a social work setting. Experience of teaching, including practice teaching or staff development, would be an added advantage.

Salary: £7,548 - £12,099
(Normally with further advancement to £14,061)

Application forms - to be returned by Friday 12th April 1985 - and further details may be obtained from the Personnel Office, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA. Tel: (0752) 284666

Plymouth Polytechnic
Department of Applied Community Studies

LECTURER II IN SOCIAL ADMINISTRATION

Applicants, who must possess a second degree in Social Administration or the Social Sciences, must be able to offer teaching expertise in the area of Welfare Rights and Social Policy. The successful candidate will be expected to have a proven record of achievement in the field of Social Administration or the Social Sciences.

Salary: £7,548 - £12,099 per annum.

For further details and application forms, returnable by 12 April 1985, send a self-addressed envelope, quoting the appropriate reference number to the Secretary, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA. Tel: (0752) 284666

(70019)

REMINDER
COPY FOR CLASSIFIED ADVERTISEMENTS IN THE THES SHOULD ARRIVE NOT LATER THAN 10AM MONDAY PRECEDING PUBLICATION

KINGSTON POLYTECHNIC

Faculty of Engineering

School of Information Systems Design

LECTURESHIP IN INFORMATION SYSTEMS DESIGN

Kingston Polytechnic is one of the leading institutions for undergraduate and postgraduate education in Information Systems Design. There is a considerable and expanding research commitment balanced with extensive consultancy in industrial organisations in the UK and Continental Europe. The School of Information Systems Design has a postgraduate population of over 50 MSc and research students, and accepts a further 55-60 entrants per year to its BSc (Honours) course in Information Systems Design. A developing programme of short courses is also offered.

Applications are now invited for a position as Senior Lecturer or Lecturer II level. Preference will be given to applicants with strong motivation to specialise in the use of Application Generators and other fourth generation system development tools, and in the areas of Data Modelling and Data Design. Interest in Expert Systems will be encouraged. Opportunities exist for part-time study for a higher degree.

Salary range LII/SL £8,226-£14,739 including London allowance.

Further details and application forms from Personnel Officer, Kingston Polytechnic, Penryn Road, Kingston upon Thames KT1 2EE. Tel: 01-548 1366 ext 287. Closing date 8th April 1985.

(620142)

HEAD OF DEPARTMENT/PROFESSIONAL POSTS IN ELECTRICAL AND ELECTRONIC ENGINEERING AND SURVEYING
Grade VI £17,397-£19,170

Applications are invited for the above posts from academically and professionally qualified candidates. The Polytechnic Council would also be pleased to hear of suitable candidates from third parties.

Further particulars and application forms may be obtained from The Staff Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4BU. (Telephone 0802 416248 Ext 2059). Closing date for receipt of applications: 15 April 1985.

(620124)

TRENT POLYTECHNIC NOTTINGHAM

Brighton Polytechnic
FACULTY OF ART AND DESIGN
Department of Fashion and Textiles

Head of Department

£16,098-£17,877

The vacancy arises through the appointment of the present Head, John Miles, to the post of Design Director of Home Furnishings at Courtauld.

Further details and application form from the Personnel Department, Brighton Polytechnic, Moulsecombs, Brighton BN2 4AT. Telephone: (0273) 893655, ext 2480. Closing date April 19th

(620146)

Coventry (Lanchester) Polytechnic
Department of Mechanical Engineering

SERC RESEARCH ASSISTANT

Applications are invited from candidates with a Good Honours Degree in Engineering or Applied Physics to work on an SERC funded research grant.

The post is tenable for three years from as soon as possible, for work involving flow measurement in a fluid mechanics laboratory. The successful candidate will be expected to have a proven record of achievement in the field of Mechanical Engineering or Applied Physics.

Salary: £7,548 - £12,099

Application forms - to be returned by Friday 12th April 1985 - and further details may be obtained from the Personnel Office, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA. Tel: (0752) 284666

The Polytechnic of Central London

ASSISTANT ACADEMIC REGISTRAR

Applications are invited from candidates with a degree in Education or a related subject. The person appointed will work closely with the Academic Registrar and be responsible for the Academic Council and sub-committees and for the administration of the Polytechnic. The successful candidate will be expected to have a proven record of achievement in the field of Education or a related subject.

Salary: £7,548 - £12,099

Application forms - to be returned by Friday 12th April 1985 - and further details may be obtained from the Personnel Office, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA. Tel: (0752) 284666

Coventry (Lanchester) Polytechnic
Department of Mechanical Engineering

SERC RESEARCH ASSISTANT

Applications are invited from candidates with a Good Honours Degree in Engineering or Applied Physics to work on an SERC funded research grant.

The post is tenable for three years from as soon as possible, for work involving flow measurement in a fluid mechanics laboratory. The successful candidate will be expected to have a proven record of achievement in the field of Mechanical Engineering or Applied Physics.

Salary: £7,548 - £12,099

Application forms - to be returned by Friday 12th April 1985 - and further details may be obtained from the Personnel Office, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA. Tel: (0752) 284666

RESEARCH FELLOWSHIP IN OIL DRILLING TECHNOLOGY

Salary: £7,548-£8,463

Required to undertake a theoretical study of the motion of particles in an oil drilling fluid. Carried out in close co-operation with industry, the project will involve the numerical solution of coupled partial differential equations to predict the carrying capacity of oil drilling fluids.

Applicants should possess or be about to obtain a PhD or have equivalent qualifications in Mathematics, or relevant engineering discipline. Additional experience in either finite difference or finite element techniques would be welcome.

To commence as soon as possible, the project will last for a period of 3 years. Application forms - to be returned by Tuesday 16th April 1985 - together with further details may be obtained from the Personnel Officer, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA. Tel: 0752 284639.

(620170)

Plymouth Polytechnic
Lancashire Polytechnic at Preston

PRINCIPAL LECTURERS (2 POSTS)
ref. AA/196

LECTURERS II OR SENIOR LECTURERS (4 POSTS)
ref. AA/197

The above posts are part of a continued expansion programme arising from the designation of the Polytechnic as a centre for research in Information Technology.

Applicants should have a first degree in Computer Science or a related discipline. For posts at Principal Lecturer level, an established professional qualification in the relevant discipline is also required. The successful candidate will be expected to have a proven record of achievement in the field of Information Technology.

Salary: £13,095 - £14,580 (Bar) - £16,467 per annum.

Application forms - to be returned by Friday 12th April 1985 - and further details may be obtained from the Personnel Office, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA. Tel: (0752) 284666

Sunderland Polytechnic
Faculty of Art and Design
Department of Applied

PRINCIPAL LECTURER IN 3-D DESIGN (GLASS)
Salary: £13,095 - £14,580

The Polytechnic seeks to appoint an academic leader with a proven record in teaching, research and/or consultancy and a commitment to the development of research in education and research in the field of 3-D Design (Glass).

The successful candidate will be expected to have a proven record of achievement in the field of 3-D Design (Glass) and to have a proven record of achievement in the field of 3-D Design (Glass).

Salary: £13,095 - £14,580 (Bar) - £16,467 per annum.

Application forms - to be returned by Friday 12th April 1985 - and further details may be obtained from the Personnel Office, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA. Tel: (0752) 284666

Bristol Polytechnic
Law Department

LECTURER II/SENIOR LECTURER IN LAW
Ref No L145

Applications are invited for the above post from those with a good degree in Law. A professional qualification would be an advantage. Lecturers should be mainly in Law and Trusts to degree and Certificate level. A proven record of research is essential.

Salary: £13,095 - £14,580 (Bar) - £16,467 per annum.

Application forms - to be returned by Friday 12th April 1985 - and further details may be obtained from the Personnel Office, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA. Tel: (0752) 284666

Middlesex Polytechnic
Middlesex Business School

LECTURER IN ACCOUNTING AND FINANCE
to £17,145 p.a. inc.

An opportunity to teach across a wide range of courses at undergraduate, postgraduate and master's levels, and to pursue specialist teaching and research interests.

Applicants should have relevant degree and/or professional qualifications in the area of accounting and finance.

Appointments will be at an appropriate point, based on previous experience.

On the basis of LII/SL £8,226-£14,739 inclusive of London allowance.

For appointment at PL level, good academic qualifications and a proven record of achievement, and the ability to pursue specialist teaching and research interests.

Write enclosing a.s.s. (m.p.s. 40) to: The Secretary, Middlesex Business School, Middlesex Polytechnic, 114 Chase Side, London N16 9JH. Closing date 15 April 1985.

POL is an Equal Opportunity Employer.

Bristol Polytechnic
Law Department

LECTURER II/SENIOR LECTURER IN LAW
Ref No L145

Applications are invited for the above post from those with a good degree in Law. A professional qualification would be an advantage. Lecturers should be mainly in Law and Trusts to degree and Certificate level. A proven record of research is essential.

Salary: £13,095 - £14,580 (Bar) - £16,467 per annum.

Application forms - to be returned by Friday 12th April 1985 - and further details may be obtained from the Personnel Office, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA. Tel: (0752) 284666

Accommodation to Let

PROVENCE Prof's comfort, 250 sq. ft. terrace flat, 1.4.85. £8.50, from 1.4.85. £8.50. (10) 308 2913, after 6 p.m. (05717)

PLEASE MENTION THE T.H.E.S. WHEN REPLYING TO ADVERTISEMENTS

Polytechnics continued

Polytechnic of the South Bank
Department of Mathematics
Sciences and Computing
Software Specialists and
System Designers

LECTURER II/ SENIOR LECTURER
Ref: X.37

Applications from well qualified persons with a minimum of 5 years' experience in a relevant field. The successful candidate will be responsible for the design and development of software systems. The position is a full-time, permanent post with a salary of £11,000 p.a. plus benefits. Applications should be sent to the Director of Studies, Polytechnic of the South Bank, 100, Abchurch Lane, London EC4N 3DF.

Research Studies

Research Studies
Equal Opportunities
Technology College

Applications from well qualified persons with a minimum of 5 years' experience in a relevant field. The successful candidate will be responsible for the design and development of software systems. The position is a full-time, permanent post with a salary of £11,000 p.a. plus benefits. Applications should be sent to the Director of Studies, Polytechnic of the South Bank, 100, Abchurch Lane, London EC4N 3DF.

IN NURSERY NURSING LECTURER I IN SOCIOLOGY
Department of Applied Science

Applications from well qualified persons with a minimum of 5 years' experience in a relevant field. The successful candidate will be responsible for the design and development of software systems. The position is a full-time, permanent post with a salary of £11,000 p.a. plus benefits. Applications should be sent to the Director of Studies, Polytechnic of the South Bank, 100, Abchurch Lane, London EC4N 3DF.

LECTURER II/ SENIOR LECTURER IN COMPUTING/ SYSTEMS ANALYSIS (2 POSTS)

Salary Scale: Senior Lecturer £11,000 - £14,000 p.a. Lecturer II £7,500 - £10,500 p.a. plus benefits. Applications should be sent to the Director of Studies, Polytechnic of the South Bank, 100, Abchurch Lane, London EC4N 3DF.

Colleges and Departments of Art

Dartington College of Arts Devon Centre for Further Education Head of Department of Continuing Education

The Head of Department of Continuing Education will be responsible to the Principal for developments within the College and to the Chief Education Officer for the organisation and administration of this residential centre for continuing education. An up-to-date and high level of experience in the field of post-school and post-college education is necessary, together with a familiarity with information technology. **Salary Scale: Head of Department III £13,614-£15,195.** Further particulars and application forms are available from The Vice Principal, Dartington College of Arts, Tottum, Devon, TQ9 6DU, closing date for applications is 5 April 1985. (020171)

DEVON

Colleges of Further Education continued

EDUCATION DEPARTMENT ASSISTANT EDUCATION OFFICER (FURTHER EDUCATION)

£16,016-£18,044 p.a. inc.

This post has been created as a result of a recent review of the Education Department. It will be a third level professional post with major responsibilities for the administration and development of Further Education in the area. Proven administrative and managerial ability will be required, together with the enthusiasm and drive to initiate and sustain developments in this area. Form and Job Description from the Non-Teaching Personnel Section, Picket House, London Road, Twickenham TW1 3QB (081 433 ext. 281). Returnable by 18th April 1985. **London Borough of RICHMOND UPON THAMES** (An equal opportunity employer).

City of Newcastle upon Tyne Education Committee COLLEGE OF ARTS AND TECHNOLOGY ASSISTANT PRINCIPAL RESOURCES

£17,397-£19,170

Applications are invited for the above post which becomes vacant on 1 September 1985. This is a key post in a Group 9 College in the regional capital of the North East. Application forms and further particulars are available from the Personnel Office, College of Arts and Technology, Maple Terrace, Newcastle upon Tyne, NE4 7SA, to be returned within fourteen days of the appearance of this advertisement. (70003)

ilea Inner London Education Authority NORTH LONDON COLLEGE Principal

Applications are invited for the post of Principal of North London College to commence on 1st January 1986, on the retirement of the present Principal, Mr. R. M. Bess. The College is organised in five departments: Engineering & Science, Social Services, Creative Studies, General Studies, and Business Studies. The main premises are at Camden Road, N7 with branches at Abchurch Lane, N7 and Essex Road, N1. Applicants should be well qualified academically and possess a sound knowledge of further education, together with administrative experience at a senior level. Under the provisions of the Burnham (Further Education) Report, the College is in Group 5 and the salary for the post of Principal is £21,488 per annum plus £1,038 London Allowance. Further information and application forms (to be returned by 19 April 1985) may be obtained from the Education Officer (EO/FHE 4), Inner London Education Authority, Room 267A, The County Hall, London EC1T 7PB. ILEA IS AN EQUAL OPPORTUNITIES EMPLOYER.

General Vacancies



PLASTICS PROCESSING INDUSTRY TRAINING BOARD

INFORMATION OFFICER/COURSE ADMINISTRATOR

The Training Board has opened a new Plastics Processing Training Centre in the West Midlands at Telford. A key job in the Centre team is that of Information Officer/Course Administrator. We seek applications from persons having the ability to set up, develop and maintain a Training Information Service for PPITB staff and companies in the industry. The successful applicant will also be able to manage the Course Administration Systems. The person we will appoint is likely to be a graduate, having good communication skills and able to plan and co-ordinate multiple tasks effectively. Experience in a library or information service, especially where computer systems are used, would be a distinct advantage. An understanding and appreciation of manufacturing industry and developments in technology applied to manufacturing is desirable. Salary will be in the region of £8,000-£9,000 (under review) and assistance is available for relocation to the Telford area. Applications to the Centre Manager, Plastics Processing Industry Training Centre, Halefield 7, Telford, Shropshire TF7 4QL. (0201 680)

PLEASE MENTION THE T.H.E.S. WHEN REPLYING TO ADVERTISEMENTS

Overseas



Western Australian Institute of Technology Western Australian School of Mines Kalgoorlie

Head of Department MINING AND ENGINEERING

Salary (Aust) \$53,556 p.a.

Applications are invited for the position of Head, Department of Mining and Engineering. The Department offers programmes for a four-year Bachelor of Engineering (Mining) and three-year Bachelor of Applied Science (Mining Engineering), a two-year Associate Diploma in Mine Surveying and a two-year Associate Diploma in Coal Mining Technology. The Head of Department will be required to provide academic and professional leadership, effective liaison with industry (with particular reference to applied research), to teach in areas of expertise and co-ordinate the academic and administrative functions of the Department in co-operation with the other Departments of the School — Extractive Metallurgy, Mineral Exploration and Mining Geology. Applicants should have strong academic and professional qualifications in Mining Engineering with relevant experience in the mining industry. Tertiary teaching or research experience is desirable. Consultative Work: Applicants would be encouraged to pursue consultative work in their fields of expertise. Such links with industry could provide opportunities with enhanced earning capacity and the opportunity to travel within Australia and overseas. WAIT policy allows academic staff to earn up to an additional 20% of their WAIT income in professional activities. Head of Department: It is Institute policy that persons appointed as Head of Department will be assigned the appropriate duties for an initial period of three years with eligibility for renewal. Should an appointee continue as Head of Department the academic level and salary are retained. Conditions: include leave for appointee and family plus assistance with removal expenses; superannuation. Location: Kalgoorlie is 800 km east of Perth. Applications: enclosing names and addresses of three referees should be submitted not later than 31 May 1985 to the Appointments Officer, Western Australian Institute of Technology, Kent Street, Bentley, Western Australia, 6102. A brochure containing further information may be obtained by Telrex (AA 82983) or Cable (WANTECH) citing "Appointments", position reference number and your return address. When applying please quote Ref. No. 763 and Code HES.



Western Australian Institute of Technology Tenured Appointments Senior Lecturer BUSINESS LAW

Co-ordinate and develop postgraduate activities of the School of Business Law as well as develop and teach individual units at postgraduate level. The ability to teach one or more of commercial law, company law or taxation is essential. Some teaching at undergraduate level may also be required. Postgraduate qualifications and postgraduate teaching/research experience are essential. Professional experience an advantage. (Ref 757)

Senior Lecturer TAXATION

Develop and teach advanced taxation units at postgraduate level in the School of Business Law. Also undertake such administrative duties as may be required for the efficient management of the School. Applicants require substantial practical experience of the Australian Taxation system. A higher degree, publications and teaching experience are desirable. (Ref 758)

Salary range (Aust) \$34,311-\$39,888 p.a.

Conditions: include leave for appointee and family plus assistance with removal expenses; superannuation.

Applications: Details including the names and addresses of three referees should be submitted not later than 10 April 1985 to the Appointments Officer, Western Australian Institute of Technology, Kent Street, Bentley, Western Australia, 6102. A brochure containing further information may be obtained by Telrex (AA 82983) or Cable (WANTECH) citing "Appointments", position reference number and your return address. When applying please quote Ref. No. and Code HES.

KUWAIT UNIVERSITY

Faculty members are invited to apply for the Department of English, Faculty of Arts, Kuwait University to fill in teaching jobs in the following specialities:

Poetry Comparative Literature Novel Translation

Applicants must hold a Ph.D degree from an eminent university should have a university teaching experience and publications in their specialities. Applications may be submitted or posted to the following address by June 30, 1985.

(Academic) Personnel Manager,
Department of Administrative Affairs,
Kuwait University,
P.O. Box 5969, Safat,
Kuwait.

Overseas continued

THE GOVERNMENT OF SAUDI ARABIA

MINISTRY OF EDUCATION

To advance the educational standards of pupils in the age range 6-18 years throughout the Kingdom of Saudi Arabia, Specialists in the following areas are invited to apply for long term interesting appointments:

I. **PSYCHOMETRIC METHODS & EDUCATIONAL STANDARDS**: Responsibilities include the advancement of methods and standards developing and supervising tests, devising tests and examination methods, supervising and training of staff.

II. **PSYCHOMETRIC METHODS**: Responsibilities include the development of tests and material, to assess intelligence, capabilities, personality and psychological qualities, carrying out tests and analysis of results.

III. **EDUCATIONAL STANDARDS**: Responsibilities include analysis of curriculum and syllabi, preparing and developing school tests, analysis of results, proposing and implementing changes deemed necessary.

IV. **STATISTICS AND ASSESSMENT**: Responsibilities include the development of statistical studies, methods to gather and categorise data, supervision and training of staff.

V. **STATISTICS RESEARCH**: Responsibilities include gathering and categorising data, development of studies and research, analysis of data.

VI. **ASSESSMENT RESEARCH**: Responsibilities include designing and executing assessment studies, developing methods and materials, definition of curricula aims, participation in assessment of curricula and syllabi and report preparation.

Qualification sought: I-PhD; II-MSc; III-MSc; IV-PhD; V-MSc; VI-MSc in a relevant discipline.

Experience: At least two years, presently or in recent years in a relevant or related field.

Language: III: III & VI: Knowledge of Arabic written and spoken is required.

Excellent (tax free) Salaries commensurate with qualifications and experience and benefits which include married accommodation or an additional allowance, local travel allowance, generous leave schedule, air tickets and free medical care.

C.V.s please to: (Ref 07)
Saudi Arabian Government Personnel Office,
Suite 1, 4th floor, 1 Great Cumberland Place,
London W1 HTAL. (0201 48)

UNIVERSITY OF REGINA INVITES APPLICATION AND NOMINATIONS FOR THE POSITION OF

DEAN FACULTY OF SOCIAL WORK

The Dean administers the Faculty of Social Work, which includes the School of Human Services administered by an Associate Dean. The Certificate and Bachelor of Social Work, Master of Social Work, and the Certificate and Bachelor of Human Services degrees are offered. The CSW/BSW program is multidisciplinary with a broad human services educational approach to social welfare services and is available throughout the Province.

APPOINTMENT: January 1, 1986 (earlier if selected candidate is available).

QUALIFICATIONS: The candidate should:

- have demonstrated sufficient scholarly achievement and professional competence to qualify for an appointment at the rank of full professor in the Faculty of Social Work.
- have a high level of competence in social services, an appreciation of the provincial, national, and international human services scene, a commitment to teaching, research, interdisciplinary studies, and improving human services.
- have a commitment to geographically dispersed educational programming and to adult learning programs.
- have demonstrated interest in promoting financial support for research.
- should be willing to accept an initial five-year appointment.

APPLICATION DEADLINE: Nominations or applications, accompanied by a resume will be received until June 30, 1985.

Applications should be directed to: Office of the Vice-President, University of Regina, Regina, Saskatchewan S4S 0A2.

First consideration will be given to those who at the time of application are legally eligible to work in Canada. (0201 47)

Librarians

CAMBRIDGE UNIVERSITY LIBRARY ASSISTANT LIBRARY OFFICER (Scientific Periodicals Library)

Applications invited from good honours graduates. Research and/or library qualifications highly desirable, and experience in an academic library, with knowledge of on-line information retrieval techniques, would be an additional advantage.

Salary of the Assistant Library Officer: £7,520-£9,360. Further particulars from the University Librarian, Secretary to the Appointments Committee for the University Library, West Road, Cambridge CB3 9PL, to whom applications should be sent by 29 April 1985.

RMIT

AUSTRALIA

DEAN - FACULTY OF BUSINESS

Mr Noel Anthony, the Foundation Dean, will be retiring late in 1985, and applications are now being invited for the position of Dean, Faculty of Business.

The Faculty of Business is an innovative and progressive body of professionals and is seeking a highly qualified and motivated person to lead its future development.

Currently the Faculty comprises three departments: Accountancy, Administrative Studies and Applied Economics and has initiated the establishment of a Management Development Centre as the focus for its research, consulting and training activities.

It is expected that the successful candidate will have appropriate post graduate qualifications and currently hold a senior business oriented position in industry, government or academic institution.

The successful candidate will be offered a tenured position within the Institute at the classification of Head of School III and a term appointment as Dean at the classification of Head of School I for a period of five years with the possibility of a further term appointment.

Current Annual Salary: (HOSI) \$A52,028 p.a. (HOSII) \$A48,462 p.a.

Reference No: 160.01.AN

Closes: 25 May 1985.

For further information contact Mr N. Anthony, Position Descriptions, quoting Ref. No., available from Personnel Services Group, RMIT, GPO Box 2476V, Melbourne, Vic. 3001 Australia.

Applications to Senior Appointments Officer.

ROYAL MELBOURNE INSTITUTE OF TECHNOLOGY LIMITED
GPO Box 2476V, Melbourne, Victoria 3001
AUSTRALIA (0201 48)



CANBERRA SCHOOL OF ART DIRECTOR

The foundation Director of the School, Mr Udo Selbach, retires in April and applications are invited from suitably qualified and experienced people for the position of Director.

The School is a single purpose institution for tertiary education in the Visual Arts and Crafts. It offers Degree, Graduate and Associate Diploma courses, as well as non-award and part-time evening courses. The School was established in 1978 and a major renovation and buildings program was completed in 1981, providing some of the most attractive art school facilities in Australia. The School has a professional standard exhibition gallery, a new library and accommodation for visiting artists and craftsmen.

The core of the fully integrated system of multi-level education in art and craft is workshops in the following areas -

- Ceramics, Glass, Gold and Silversmithing, Graphic Investigation, Leather, Painting, Photomedia, Printmaking, Sculpture, Textiles/Fibre, Wood, Art History and Theory and Open Art.

In these workshops, conditions and practice approximate day-to-day professional art activity and the Council of the School wishes to consolidate this approach and organisation.

As chief professional and executive officer of the School, the Director will provide educational, administrative and artistic leadership, and will exercise overall responsibility for its administration. The Director will also provide advice and guidance to the Council, which is responsible to the Minister for Education through the Director of ACT Further Education in the Commonwealth Department of Education, and promote the development of the School as one of the country's major art schools. In general and academic administration the Director is supported by an Assistant Director.

Appointment to the position will be for a period of up to five years as negotiated, with eligibility for renewal subject to retirement at the age of 65. There is provision for superannuation and for assistance with travel expenses and with short term housing for an appointee from outside Canberra.

Salary: \$52,028.

Applications, accompanied by a curriculum vitae, and the names and addresses of three referees, together with evidence and documentation of previous work and achievements, and a telephone number for contact purposes, should be sent to:

Director of ACT Further Education
Department of Education
PO Box 826
WOODEN ACT 2806

Applications close 31 March, 1985. (0201 55)

South Australian College of Advanced Education

The Council of the South Australian College of Advanced Education invites applications for the position of

PRINCIPAL

The College was established by Act of Parliament in 1982 by incorporating the former Adelaide College of the Arts and Education and Hartley, Salisbury and Sturt Colleges of Advanced Education. The College operates a six Faculty structure on five sites in metropolitan Adelaide. The Office of the Principal, the Directorates and the Administrative Secretariats are located on the City Site.

The College offers degrees in Art, Design, Business, Aboriginal Studies, Education, Communication, Journalism, Health Sciences, Home Economics, Recreation, Interpreting and Translating, Music and Dance and Early Childhood as well as a number of undergraduate and postgraduate diplomas. In 1985 over 10,000 people are enrolled as full-time, part-time or external students.

The Principal is responsible to the Council for the development and operation of the College and for establishing and maintaining effective links with Federal and State authorities, with other institutions and with the professions for which students are being prepared.

The position will be offered initially as a limited term contract for seven years at Director level 7 of the Academic Salaries Tribunal scales, currently \$61,608. It is expected that this salary will increase by approximately 3% in April 1985.

The South Australian College of Advanced Education is an equal opportunity employer.

Documents containing further information about the College may be requested from the Secretary: Starting (08) 228 1636. Applications, including the names and addresses of three persons from whom confidential references may be sought, should be mailed CONFIDENTIAL and addressed to:

The President of Council
The South Australian College of Advanced Education
46 Kintore Avenue, Adelaide, South Australia 5000
Closing Date: 5 May 1985.

PLEASE MENTION THE T.H.E.S. WHEN REPLYING TO ADVERTISEMENTS